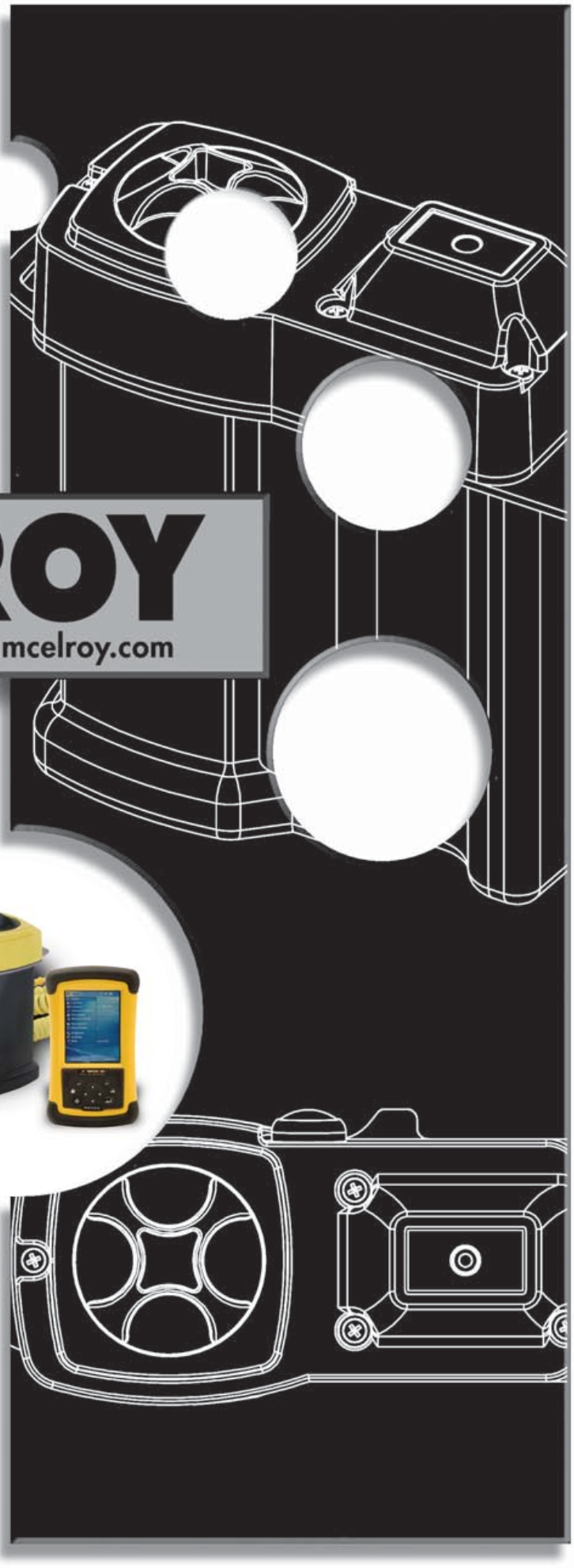
Operator's Manual



McELROY

www.mcelroy.com

Fusion Joint DataLogger®

DataLogger®

with Rugged Pocket PC

Original Language: English

Manual: DL10501 Revision: C 8/11

Introduction

Thank You for purchasing this McElroy product.

McElroy's third generation DataLogger® system has two options for the DataLogger, a wireless version with Bluetooth® wireless and a wired version. Both use the Windows Mobile based Pocket PC. The wireless DataLogger reads pressures up to 2000 psi. The wired DataLogger reads pressures up to 4000 psi.

The McElroy DataLogger® system consists of a data logging device (called the DataLogger®), a Pocket PC, and optional accessories. The DataLogger® logs and store report for one joint, and then transmit the joint report to the Pocket PC.

In addition to providing a user interface, the Pocket PC is capable of storing hundreds of reports limited only by its memory capacity. For example, a Pocket PC with 20MB of user accessible memory can store up to 10,000 reports that are 2Kbytes in length. (Note: although the Pocket PC has the capacity, you are strongly advised to backup your report data to a Desktop PC or secondary storage device).

NOTICE: Please take every precaution to safeguard your joint reports. If joint reports are critical to your job, make backups often and print out every joint report at the completion of each joint using the optional printer. McElroy cannot guarantee the safety and integrity of joint reports beyond the specification of component manufacturers and the handling of equipment in the field.

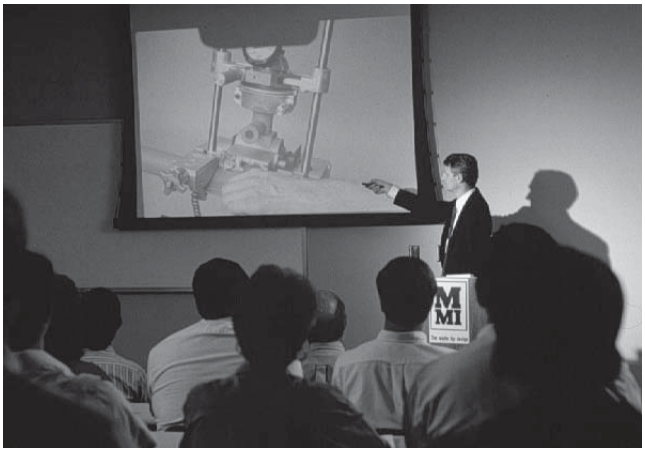
TX03042-8-9-10

World Class Training

This manual is intended as a guide only and does not take the place of proper training by qualified instructors.

The information in this manual is not all inclusive and can not encompass all possible situations that can be encountered during various operations.

McElroy Manufacturing, Inc., offers advanced training classes to enhance efficiency, productivity, safety and quality. Training is available at our facility or on-site at your location. Call (918) 836-8611



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TX01333-4-23-97

Warranty

LIMITED WARRANTY

McElroy Manufacturing, Inc. (McElroy) warrants all products manufactured, sold and repaired by it to be free from defects in materials and workmanship, its obligation under this warranty being limited to repairing or replacing at its factory and new products, within **3 years** after shipment, with the exception of purchased items (such as electronic devices, pumps, switches, etc.), in which case that manufacturer's warranty applies. Warranty applies when returned freight is prepaid and which, upon examination, shall disclose to have been defective. This warranty does not apply to any product or component which has been repaired or altered by anyone other than McElroy or has become damaged due to misuse, negligence or casualty, or has not been operated or maintained according to McElroy's printed instructions and warnings. This warranty is expressly in lieu of all other warranties expressed or implied. The remedies of the Buyer are the exclusive and sole remedies available and Buyer shall not be entitled to receive any incidental or consequential damages. Buyer waives the benefit of any rule that disclaimer of warranty shall be construed against McElroy and agrees that such disclaimers herein shall be construed liberally in favor of McElroy.

RETURN OF GOODS

Buyer agrees not to return goods for any reason except upon the written consent of McElroy obtained in advance of such return, which consent, if given, shall specify the terms and conditions and charges upon which any such return may be made. Materials returned to McElroy, for warranty work, repair, etc., **must have a Return Material Authorization (RMA) number**, and be so noted on the package at time of shipment. For assistance, inquiry shall be directed to:

McElroy Manufacturing, Inc.
P.O. Box 580550
833 North Fulton Street Tulsa, Oklahoma 74158-0550

PHONE: (918) 836–8611, FAX: (918) 831–9285.
EMAIL: fusion@McElroy.com

Note: Certain repairs, warranty work, and inquiries may be directed, at McElroy's discretion, to an authorized service center or distributor.

DISCLAIMER OF LIABILITY

McElroy accepts no responsibility of liability for fusion joints. Operation and maintenance of the product is the responsibility of others. We recommend qualified joining procedures be followed when using McElroy fusion equipment.

McElroy makes no other warranty of any kind whatever, express or implied; and all implied warranties of merchantability and fitness for a particular purpose which exceed the aforestated obligation are hereby disclaimed by McElroy.

PRODUCT IMPROVEMENT

McElroy reserves the right to make any changes in or improvements on its products without incurring any liability or obligation to update or change previously sold machines and/or the accessories thereto.

INFORMATION DISCLOSED

No information of knowledge heretofore or hereafter disclosed to McElroy in the performance of or in connection with the terms hereof, shall be deemed to be confidential or proprietary, unless otherwise expressly agreed to in writing by McElroy and any such information or knowledge shall be free from restrictions, other than a claim for patent infringement, is part of the consideration hereof.

PROPRIETARY RIGHTS

All proprietary rights pertaining to the equipment or the components of the equipment to be delivered by McElroy hereunder, and all patent rights therein, arising prior to, or in the course of, or as a result of the design or fabrication of the said product, are exclusively the property of McElroy.

LAW APPLICABLE

All sales shall be governed by the Uniform Commercial Code of Oklahoma, U.S.A.

Register your product online to activate your warranty:www.McElroy.com/fusion

(Copy information listed on the machine nameplate here for your records).

Model No. _____

Serial No. _____

Date Received _____

Distributor _____

TX02486-04-06-05

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TX02821-2-21-11

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Equipment Safety

Safety Alerts

This hazard alert sign appears in this manual. When you see this sign, carefully read what it says. YOUR SAFETY IS AT STAKE.

You will see the hazard alert sign with these words: DANGER, WARNING, and CAUTION.

WR00051-11-30-92

DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION Indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.

In this manual you should look for two other words: **NOTICE** and **IMPORTANT**.

NOTICE: can keep you from doing something that might damage the machine or someone's property. It may also be used to alert against unsafe practices.

IMPORTANT: can help you do a better job or make your job easier in some way.

TX00030-12-1-92

Read and Understand

Do not operate this equipment until you have carefully read, and understand all the sections of this manual, and all other equipment manuals that will be used with it.

Your safety and the safety of others depends upon care and judgment in the operation of this equipment.

Follow all applicable federal, state, local, and industry specific regulations.

McElroy Manufacturing, Inc. cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the machine are therefore not all inclusive. You must satisfy yourself that a procedure, tool, work method, or operating technique is safe for you and others. You should also ensure that the machine will not be damaged or made unsafe by the method of operation or maintenance you choose.

WR00052-12-1-92

TX02946-4-15-09

General Safety

Safety is important. Report anything unusual that you notice during set up or operation.

LISTEN for thumps, bumps, rattles, squeals, air leaks, or unusual sounds.

SMELL odors like burning insulation, hot metal, burning rubber, hot oil, or natural gas.

FEEL any changes in the way the equipment operates.

SEE problems with wiring and cables, hydraulic connections, or other equipment.

REPORT anything you see, feel, smell, or hear that is different from what you expect, or that you think may be unsafe.

SAFE1ST-12-22-92

TX00114-4-22-93

Wear Safety Equipment

Wear a hard hat, safety shoes, safety glasses, and other applicable personal protective equipment.

Remove jewelry and rings, and do not wear loose-fitting clothing or long hair that could catch on controls or moving machinery.

WR00053-12-2-92

TX00032-4-7-93

Equipment is Not Explosion Proof

⚠ DANGER DataLogger® equipment is not explosion proof. Operation of equipment in a hazardous environment may result in explosion and death.

Do not operate this equipment in a hazardous environment.

WR00034-11-30-92

TX01395-6-12-97

Units With Hydraulics

For hydraulically operated equipment, it is important to remember that a sudden hydraulic oil leak can cause serious injury, or even be fatal if the pressure is high enough.

⚠WARNING Escaping fluid under pressure can penetrate the skin causing serious injury. Keep hands and body away from pinholes which eject fluid under pressure. Use a piece of cardboard or paper to search for leaks. If any fluid is injected into the skin, it must be immediately removed by a doctor familiar with this type of injury.

NOTICE: Wear safety glasses, and keep face clear of area when bleeding air from hydraulic system to avoid spraying oil into eyes.

WR000784-8-93

TX03077-2-16-10

Heater Is Hot

⚠CAUTION The heater is hot and will burn clothing and skin. Keep the heater in its insulated heater stand or blanket when not in use, and use care when heating the pipe.

NOTICE: Use only a clean non-synthetic cloth such as a cotton cloth to clean the heater plates.

WR000302-10-93

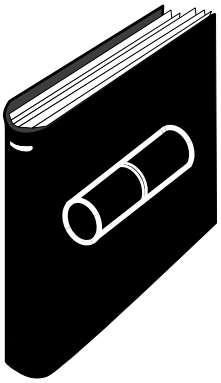
TX00104-8-12-94

Fusion Machine Procedures

Familiarize yourself with the fusion machine you will be working with by reading the Manufacturer's manuals for the machine. Read the Safety Information to avoid potentially dangerous situations.

NOTICE: Follow the pipe manufacturer's procedures or appropriate joining standard for fusing the pipe being used.

Failure to adhere to proper machine and fusion procedures can result in injury and bad fusion joints.



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Overview

The DataLogger®

The DataLogger® is a self-contained unit with its own processing power and sensor electronics. While the DataLogger® communicates with the operator via a Pocket PC, it also has two LED's to provide status and a multifunction switch.

The wireless DataLogger has a yellow top and reads pressures up to 2000 psi.

The wired DataLogger has a green top and reads pressures up to 4000 psi.

TX03043-1-21-10

Multifunction Switch

1) Turns on the DataLogger® if it is off (both LED's off). Once turned on, the DataLogger® will remain on for 2 minutes if there is no communication activity. Otherwise, the DataLogger® will stay on as long as there is communication between it and a PC. Every time this switch is pressed, it adds another 2 minutes to the on time.

2) Takes temperature reading if the DataLogger® is on but not in data logging mode. For as long as this switch is held, the temperature will be displayed on the Pocket PC screen.

3) Stops logging if the DataLogger® is in data logging mode. This switch must be held for longer than 3 seconds to turn off logging.

Note: the DataLogger® turns itself off, therefore, it does not have an OFF switch.

TX02509-6-20-05

LED Indicators

Blue LED (Bluetooth® Status - Wireless):

1) When power to the DataLogger® is turned on, the Blue LED begins to flash periodically, indicating that the Bluetooth® module is on, and is ready to communicate with a Pocket PC.

2) When the Bluetooth® module establishes connection with a Pocket PC and are exchanging data, the Blue LED stays solid.

Blue LED (Wired)

1) The Blue LED flashs when communicating with the Pocket PC.

Tri-color LED:

1) Amber: when the DataLogger® is first turned on, this LED stays amber for less than 2 seconds, indicating that the DataLogger® is in power-up initialization state.

2) Flashing Green: indicates the DataLogger® is in normal operating mode.

3) Flashing Red: indicates the DataLogger® is in data logging mode.

TX03044-1-21-10

Batteries

The DataLogger® runs on two (2) readily available alkaline D-size batteries. When the low battery indicator on the Pocket PC screen appears, the DataLogger® has less than 2 hours of run time left. The batteries must be replaced as soon as possible when not logging a joint.

The DataLogger® stores joint report in non-volatile memory so that the report will be intact even when batteries are removed for replacement. However, it is not advisable to remove the batteries during data logging. This will cause the logging to be interrupted and the joint report will not be complete. **Replace the batteries only when not logging data.**

PH03053-6-24-05

TX02511-6-20-05

Pressure Transducer

The pressure transducer is connected to the DataLogger® via a cable. The cable can be replaced easily by unscrewing from both ends. The pressure transducer taps into the hydraulic system of a fusion machine via a quick-disconnect. Pressure reading is displayed on the Pocket PC screen as long as the Pocket PC is turned on and communicating with the DataLogger®. The wireless Datalogger's transducer is rated at pressures of 2000 psi and the wired Datalogger's transducer at 4000 psi. The rating of the transducer is engraved on the transducer.

PH03052-6-24-05

IMPORTANT: The electrical cables of the two transducers are not compatible with the other.

NOTICE: Do not store pressure probe with adapter fitting(s) attached. Stored pressure can damage the transducer.

TX03045-1-21-10

Temperature Transducer

The temperature transducer is built in to the DataLogger®. By holding down the DataLogger® button, temperature is displayed on the Pocket PC screen. At the "Heater Temperature" screen, holding the button updates the display, and releasing the button logs the temperature as the current heater temperature.

To take temperature measurement, hold the top of the DataLogger® perpendicular to the heater surface. Press and hold the switch and aim the laser beams at the heater surface. When the two laser beams converge, the proper measurement distance is attained. Hold the switch until the temperature stabilize, and release the switch to lock in the reading.

dataloggerV3

TX02513-6-20-05

Pocket PC (DL3-PPC)

The software program **McElroy DL3-PPC** runs on the Pocket PC to provide user interface and joint report storage. For redundancy, a Secure Digital card (SD card) is included with every Pocket PC to backup joint reports. At the end of the day or the end of a job, the SD card can be removed from the Pocket PC and data copied to a desktop PC for further archive and processing.

Each Pocket PC is setup at the factory and ready to log data. If a new Pocket PC is acquired, please see the Procedure for **Set-up Pocket PC** section.

Note:

1) Like a desktop or notebook PC, the Pocket PC may occasionally lock up and needs a reset. Please refer to the Pocket PC's user manual to locate the Reset button. Push the stylus into the Reset buttonhole for a soft reset of the Pocket PC.

2) Like a cell phone, the Pocket PC needs to be on the charger even when not in use so that its built-in program memory content can be retained. This is to prevent having to reinstall and re-setup the Pocket PC, although joint reports and installation programs are backed up in nonvolatile Secure Digital (SD) card.

3) In the fourth quarter of 2005, the TDS Recon Rugged Pocket PC (Recon 4) was introduced to handle harsh environment applications. This Pocket PC has more built-in Flash memory for backing up reports, programs, and settings. In the event of power loss, the TDS Recon automatically restores the previously saved program and settings after confirming with the user.

4) In the fourth quarter of 2006, the Recon X (Recon 5) was introduced.

5) In 2008, the Trimble/TDS Recon 6 was introduced.

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Recon 4

PH03054-6-24-05

Recon 5

TX02811-1-21-10

Connecting Wired DataLogger

Connect the long cable at (A) on the DataLogger and at (B) on the left side of the pocket PC junction box. Connect the shorter cable with the 90° connector to (C) on the right side of the pocket PC junction box and to (D) on the transducer.

PH04348-8-2-10

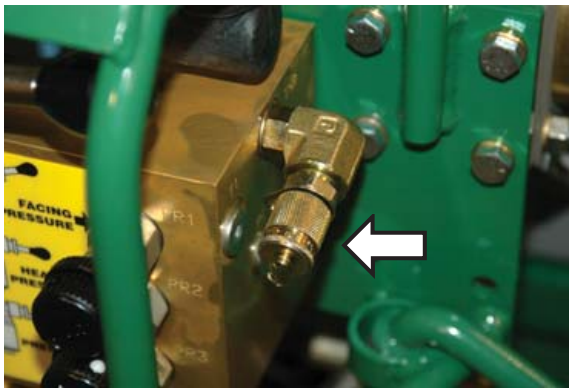
PH04346-8-2-10

PH04347-8-2-10

TX04138-8-2-10

Connecting To A Fusion Machine

NOTICE: The fusion machine must have a hydraulic quick disconnect for connecting the DataLogger® pressure transducer. If the machine does not have one, contact your distributor for the proper adapter or retrofit kit.



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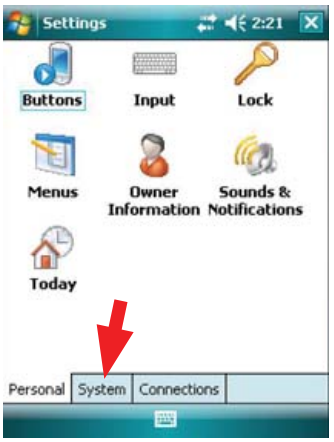
TX02515-6-20-05

Setting Time and Date

It is very important to set the correct time and date because joint reports are time stamped using the Pocket PC's clock.

1. Tap **Start > Settings**

2. Tap the **System** tab



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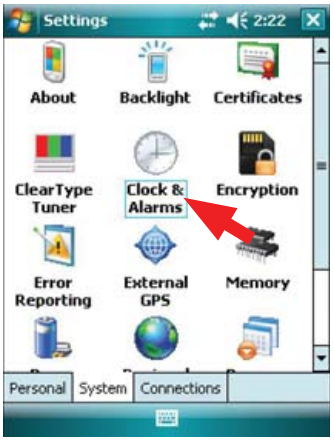
3. Tap **Clock & Alarms**



PH04486-2-17-11

4. Select the respective time and date field by tapping on it and adjust the values accordingly. For example to change the hour field, tap on it and then use the up and down arrow keys to adjust the number up or down.

PH04487-2-17-11

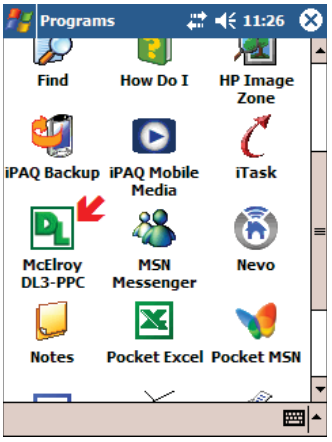
Note: it is important to check the clock often to make sure the time and date are set correctly by tapping the time displayed at the top right hand corner. The **Time and Next Appointment** dialog will show the current date and time. Check to make sure it is set correctly. If not, follow the instructions above and the user manual to set the correct date and time.

PH04488-2-17-11

TX02516-6-20-05

Starting the McElroy DL3-PPC Program

To start the program for the first time, tap **Start > Programs** to reveal the program folder, and then scroll down to find the McElroy DL3-PPC program:



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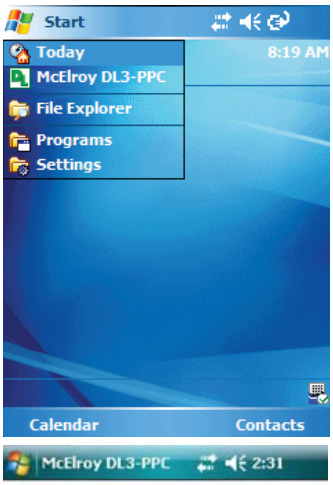
Subsequently, the program can be accessed in the Start Menu by tapping **Start > McElroy DL3-PPC:**



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Program Menu and Icons

The McElroy DL3-PPC program starts by displaying the DataLogger® logo screen.

PH04489-2-17-11

Tap **Menu** to reveal the menu items:

Log/Status: opens the dialog for communicating with the DataLogger®, setting up joint information for logging a fusion process, and monitoring status.

Open…: opens a joint report of a previously logged joint and display it on the screen for viewing and printing.

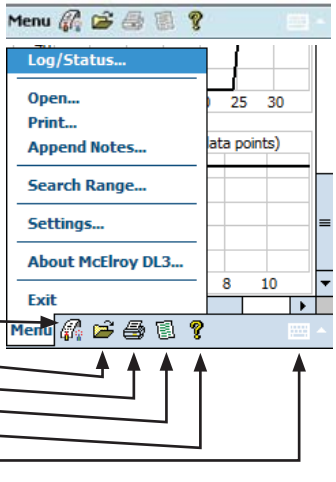
Print…: print the currently displayed joint report. Optional printer required for this feature.

About McElroy DL3…: Displays program copyright and version information.

Exit: Close and exit DL3-PPC Program. Always exit programs before inserting and removing SD card.

Keyboard: reveals/hides the on screen keyboard used for data entry.

TX02518-6-20-05



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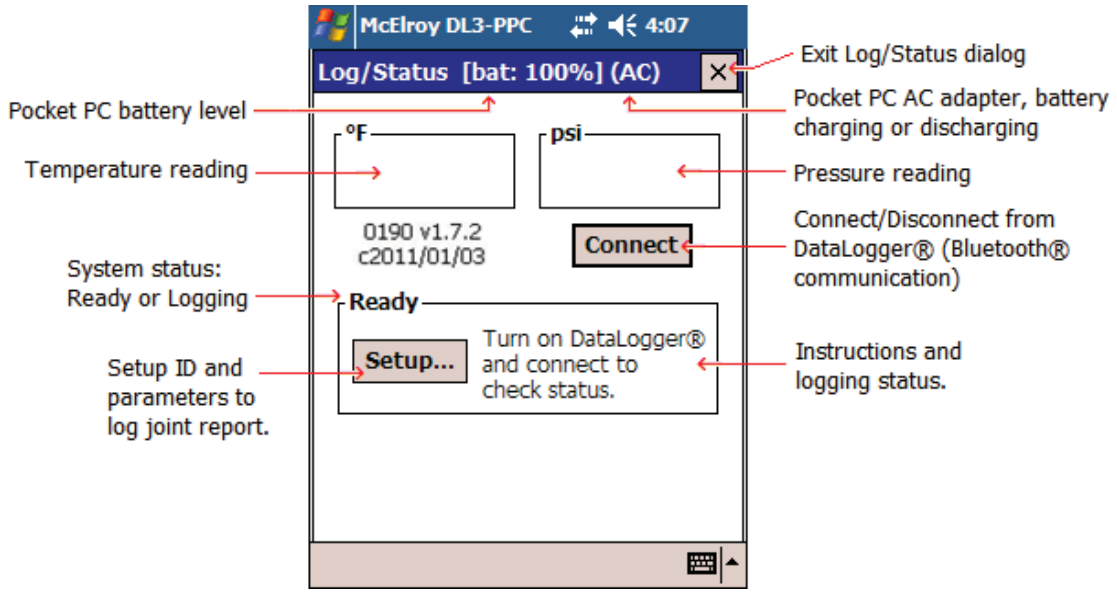
The Log/Status Dialog Box

Tap the **Log/Status...** icon or menu item to open the Log/Status dialog box. This dialog box provides status information including Pocket PC battery level, DataLogger® battery status, pressure transducer and temperature readings, and logging status.

Turn on the DataLogger® by pressing and releasing the multifunction switch on the unit once. (Note: the DataLogger® will turn off automatically when not active for over 2 minutes. Inactivity means not communicating with the Pocket PC and not logging)

Wireless



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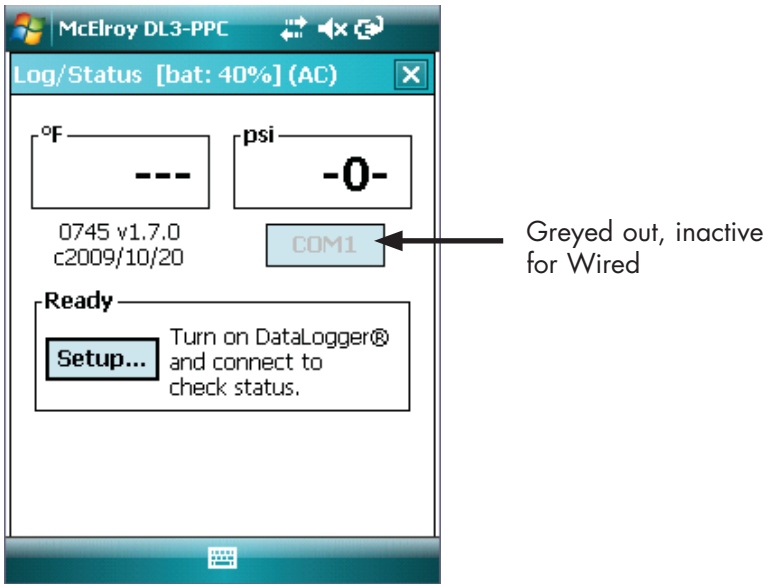
Wireless: Tap the **Connect** button to initiate connection with the DataLogger®. A message box appears as a reminder to turn on the DataLogger® before continuing:

Wired: It is not necessary, or an option to tap connect when COM1 is selected. To select a COM port, see the section "Setting up the Wired Serial Port" in this manual. The DataLogger must be on for a connection link to be established.

Wired



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The Log/Status Dialog Box (cont'd)

After making sure the DataLogger® is turned on (by pressing and releasing the multifunction switch), tap OK to connect.

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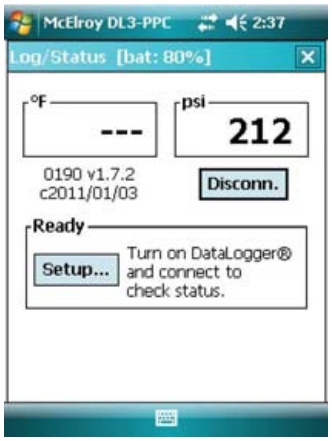
Wireless



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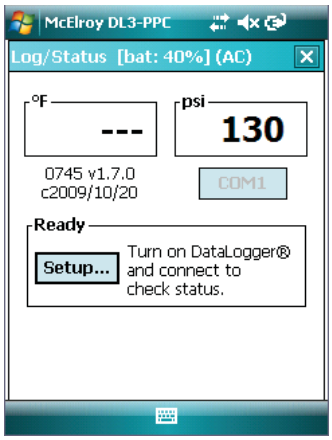
Wireless: Once connected, the dialog box starts displaying pressure reading and the DataLogger® name and firmware version number, and the **Connect** button changes to **Disconnect:**

Wired: Once connected, the dialog box starts displaying pressure reading and the DataLogger® name and firmware version number. When **COM1** is selected the button is always inactive and reads **"COM1".**

Temperature reading is only updated when the DataLogger® switch is held down. Otherwise, it displays - - -. If there is an error due to hardware failure or out-of-range readings, the temperature field displays **ERR**.

Wired



PH04022-1-21-10

Pressure reading is updated constantly as long as the DataLogger® is connected. If there is an error due to hardware failure or out-of-range readings, the pressure field displays **ERR**.

If the D-size batteries in the DataLogger® are low, the **[BAT!]** indicator is displayed next to the pressure unit (psi in this example). It is best to change batteries at your earliest convenience.

Wireless: To disconnect from the DataLogger®, tap **Disconnect**.

You may turn off the Pocket PC to conserve power. The DataLogger® will automatically turn off after 2 minutes of inactivity.

TX03046-2-17-11

Setting up to Log a Joint

Operator and Joint information can be entered with or without a connection to the DataLogger®. In the **Log/Status** dialog box, tap **Setup...** to begin entering information for the next joint. A series of dialog boxes will prompt you to enter the information one step at a time, beginning with the **Machine** dialog box:

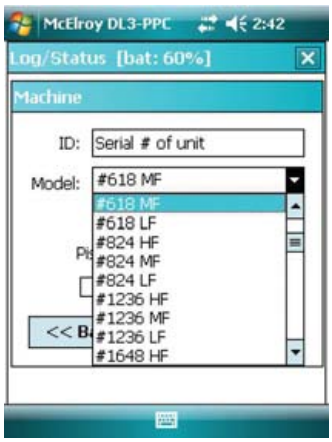
To enter new text or edit the Machine ID text field, tap the keyboard icon at the bottom of the screen to bring up the on screen keyboard:

PH04491-2-17-11

Tap in the field where new text is to be entered or change, and tap in new text using the on screen keyboard. The machine ID is a 20-character field that accepts alphabets and numeric characters. When done, tap the keyboard icon to remove the on screen keyboard.

PH04493-2-17-11

To select a new machine model, tap the down arrow icon and scroll to select a machine from the list. Verify the total effective piston area for the machine selected.



PH04494-2-17-11

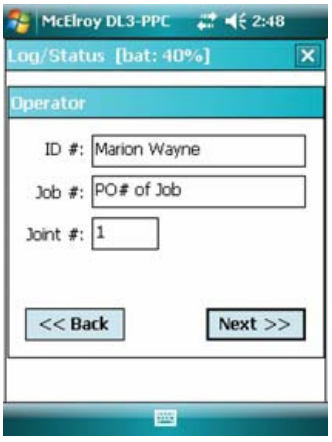
Setting up to Log a Joint (cont'd)

Tap **Next >>** to save changes and move on. (To discard the changes, tap **<< Back** and go back to the **Log/Status** dialog box.)

PH04491-2-17-11

The next dialog box prompts for operator information:

Both operator ID and Job number are 20 - character fields that accept alphabets and numeric characters. The joint number field is numeric-only, and will be automatically incremented after each joint.



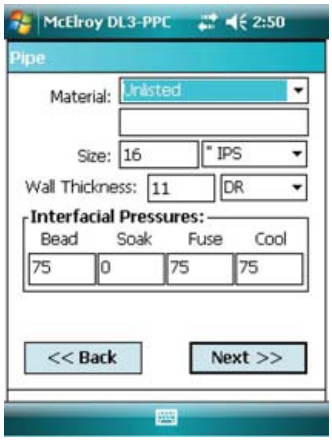
PH04495-2-17-11

The next dialog prompts for pipe parameters: material, size, wall thickness, and interfacial pressures:

PH04496-2-17-11

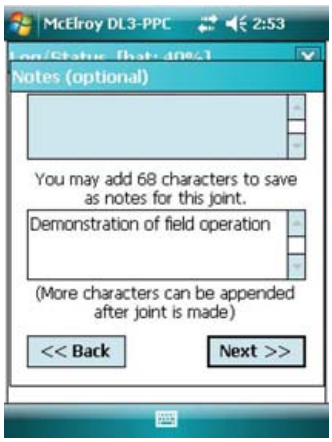
Setting up to Log a Joint (cont'd)

If your pipe material is not listed, please select "Unlisted" from the material list, and a new field appears so that you may enter your material name:



PH04497-2-17-11

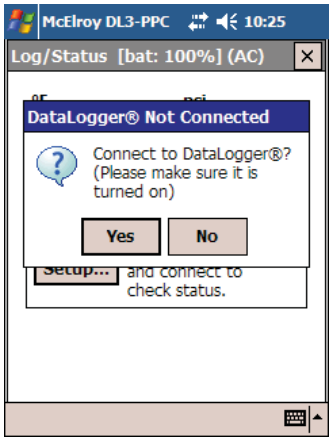
The next field allows you to type in optional notes to supplement the job description, for example positioning or location information. You may enter up to 200 characters:



PH04498-2-17-11

If the DataLogger® is not already turned on and connected, a message box will appear to prompt you to turn it on and connect. At this point the DataLogger® should be on the fusion machine and its pressure transducer connected to the hydraulic system. The fusion machine should have pipe installed in it, faced off, and heater install and ready to fuse pipe.

Press and release the DataLogger® multifunction switch to make sure it is turned on and flashing the blue and green LED (note: a flashing red LED indicates it is logging data).
Tap **Yes** to scan for the DataLogger® and connect to it:



PH02940-3-14-05

Setting up to Log a Joint (cont'd)

Wireless: The blue LED on the DataLogger® will stay lit to indicate communication between the DataLogger® and the Pocket PC.

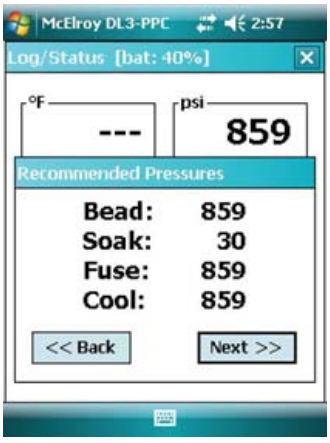
Wired: The blue LED on the DataLogger® will flash to indication communication between the DataLogger® and the Pocket PC.

The next dialog box prompts for Drag pressure measured:

The DataLogger® pressure transducer must have already been connected to the fusion machine to measure drag pressure. Follow proper procedure to measure drag pressure and enter it in the dialog box.

The next dialog box shows the recommended gauge pressures, and you can use it to set the various pressures (heat, soak, and fuse pressure) of your fusion machine. The carriage control valve must be in the closed position.

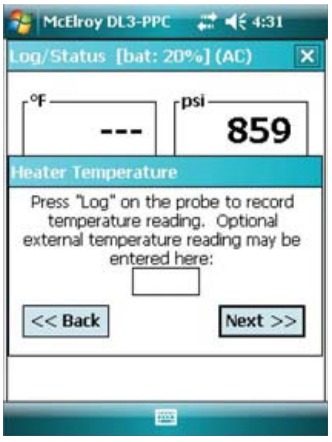
PH04499-2-17-11



PH04501-2-17-11

The next dialog box prompts for heater temperature measurement.

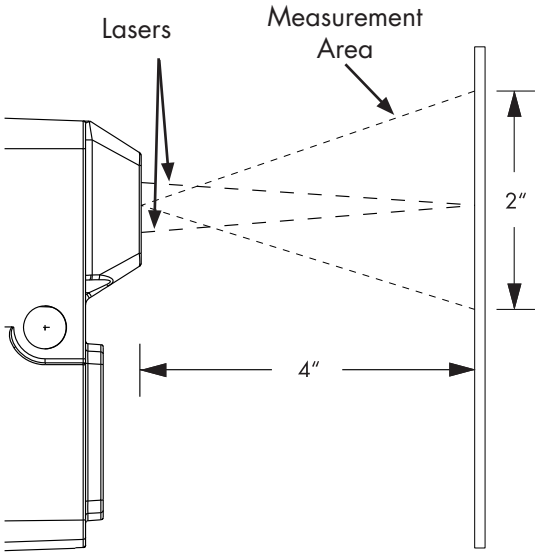
To measure heater temperature, hold the top of the DataLogger® about 4 inches from the heater plate and perpendicular to the heater plate, pointing the temperature sensor at the area of fusion on the heater plate.
Press and hold the DataLogger® switch to turn on the guidance lasers. Adjust the distance between the DataLogger® and the heater plate until the two laser beams converge to a single point. Use the Pocket PC screen to read the temperature.

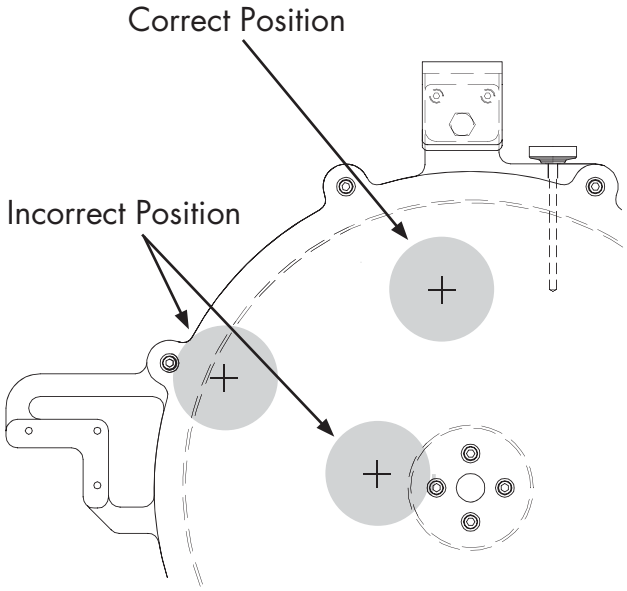


PH04502-2-17-11

Setting up to Log a Joint (cont'd)

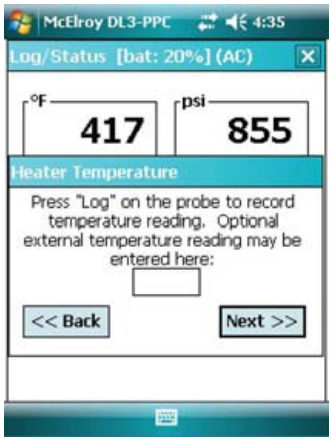
The Datalogger® reads the temperature in a 2 inch area around the points of the lasers. Make sure you take the reading from an area that has no obstructions. Make sure the 2 inch area is completely on the heating surface of the heater.





Once the temperature is stable, release the DataLogger® multi-function switch to record the temperature. Notice the temperature box flashes "* **Log XXX°F**" to indicate recorded temperature.

If an external temperature probe is used as a secondary temperature-measuring device (such as a pyrometer), the reading from the device can be entered n the optional "external temperature reading" field.

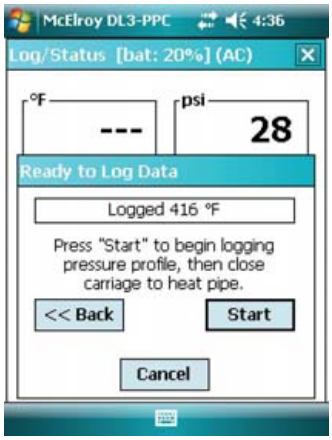


PH04503-2-17-11

The next dialog box prompts you to get ready to fuse the pipe:

At this point, the fusion machine should have pipe installed in it, faced off, and heater installed and ready to fuse pipe.

If ready to proceed, tap **Start** and wait for the DataLogger® to begin logging before initiating the fusion process.

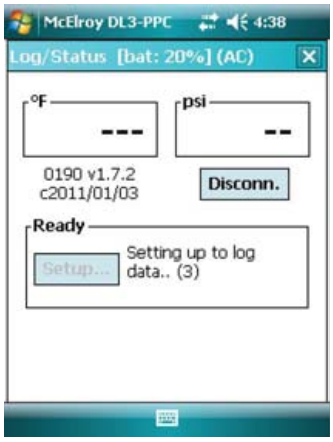


PH04504-2-17-11

TX03047-1-21-10

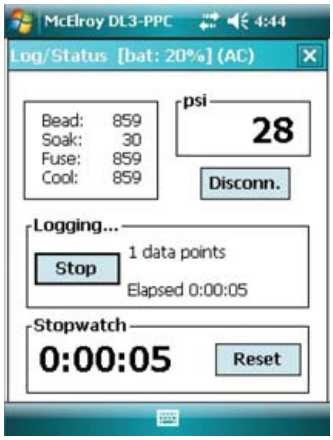
Logging the Fusion Process

After tapping the **Start** button on the Pocket PC to log data, the Pocket PC transmit all the data entered to the DataLogger®. You will see a screen such as:



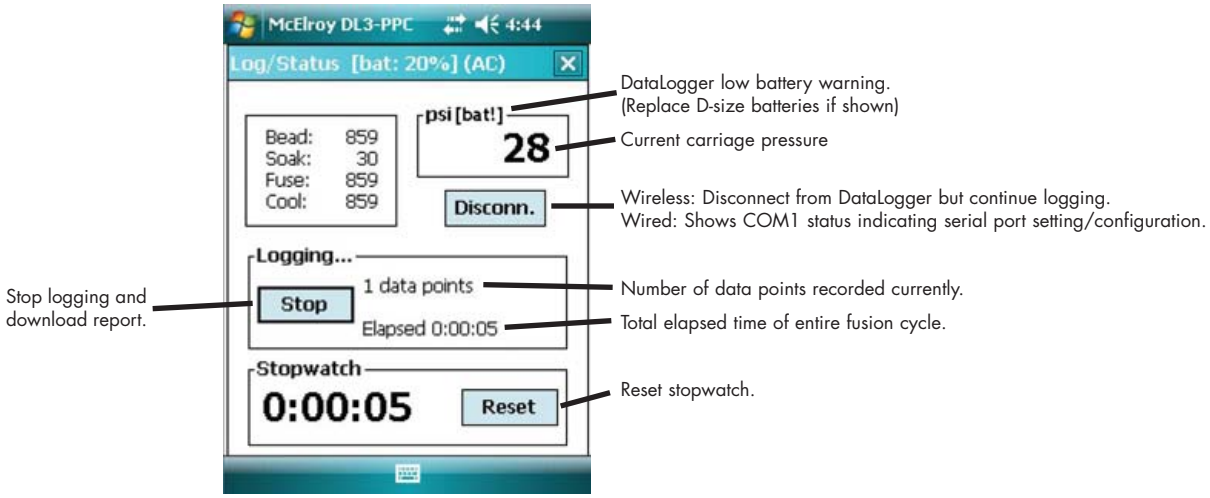
PH04505-2-17-11

This screen and subsequent ones show the data blocks that are transmitted to the DataLogger®. Once the data is transmitted, the stopwatch appears at the bottom of the dialog box:



PH04506-2-17-11

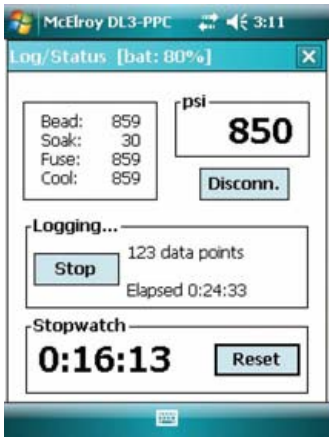
When the stopwatch reaches 5 seconds, you may proceed to close the carriage to move the pipes towards the heater plate. The stopwatch will continue to count, and the status updated. The DataLogger® will flash it's red LED to indicate it is in logging mode



PH04515-2-17-11

Logging the Fusion Process (cont'd)

Once logging has started, you may tap disconnect to turn off the Pocket PC to conserve battery power. The DataLogger® will continue to log data while you monitor and control the fusion process – heat, soak, fuse cycles.



PH04508-2-17-11

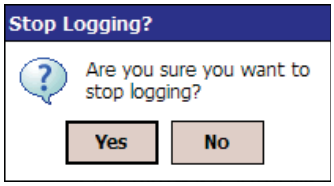
At the end of the fusion process, you may stop logging by holding the DataLogger® switch for 4 seconds. The DataLogger® will stop logging and stop flashing its red LED. The LED will now flash green to indicate normal operation.

NOTE: Always stop logging before opening carriage to remove pipe. Otherwise, it will introduce an unintended change in pressure at the end of the joint report graph.

Alternatively, you may also stop logging from your Pocket PC. If the Pocket PC was turned off, turn it on.

Wireless: In the **Log/Status** dialog box tap **Connect**.

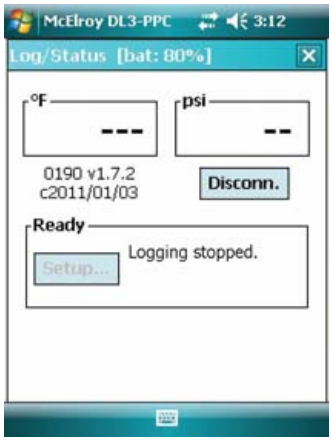
Once connected, the current status of the DataLogger® is displayed:



PH02950-3-14-05

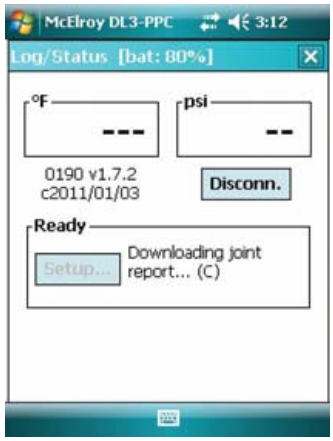
Tap **Stop** at the end of the fusion process. (Always make sure to stop logging before opening carriage to remove pipe)

A confirmation message box appears. Tap **Yes** to stop logging.



PH04516-2-17-11

The Pocket PC begins to request joint report data from the DataLogger® a block at a time until it is all downloaded.



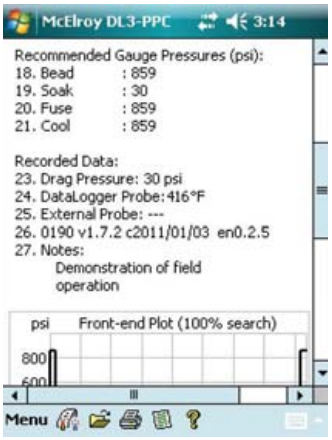
PH04509-2-17-11

Logging the Fusion Process (cont'd)

At the end of the download, the joint report is displayed on the screen:

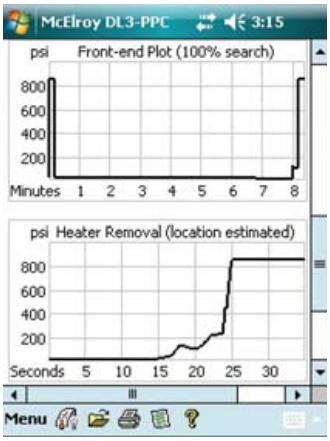
PH04510-2-17-11

You may use the scroll bar to scroll through the report:

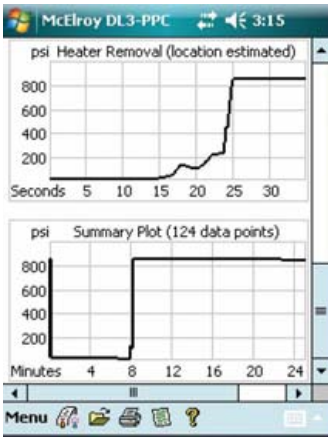


PH04511-2-17-11

The front-end plot highlights bead-up and the critical shift-sequence into the soak cycle. The summary plot shows the entire fusion process from start to stop. (**Note:** this is only a demonstration. Data used are fictitious and for demonstration purposes only)



PH04512-2-17-11



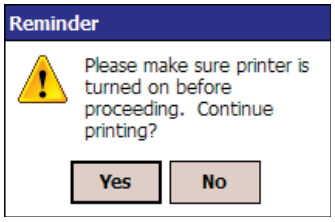
PH04513-2-17-11

TX03048-2-21-11

Printing Reports (Optional)

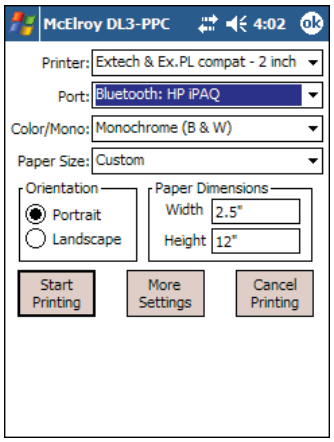
See **"Installing Printer Port"** Section if using the printer for the first time.
Joint reports are stored in duplicates, one copy in the Pocket PC's main memory (battery backed up), and another copy in the Secure Digital (SD) Card (non-volatile memory). For additional backup, reports can be printed to an optional printer in the field after the completion of each joint - **highly recommended for jobs requiring joint reports.**

To print the current report, simply tap the printer icon at the bottom of the screen, or tap **Menu > Print...** A message box prompts you to turn on the optional printer:



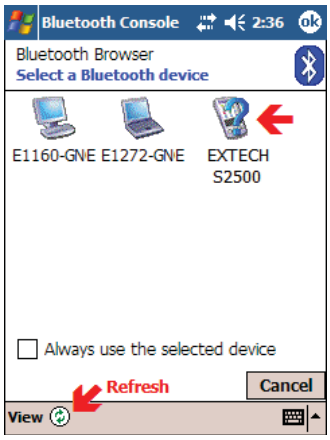
PH02956-3-14-05

Turn on the printer and tap **Yes** to show the printer dialog box. Make sure the following settings are selected then tap **Start Printing**.



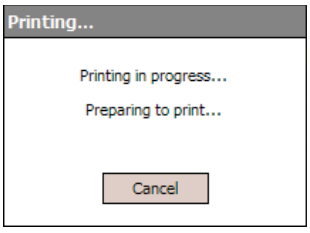
PH02957-3-14-05

In older models the Bluetooth® Console appears to allow printer selection. If no printer is present, tap the Refresh icon and wait for the Bluetooth icon on the upper right corner. Select the EXTECH printer you are printing to by tapping it.

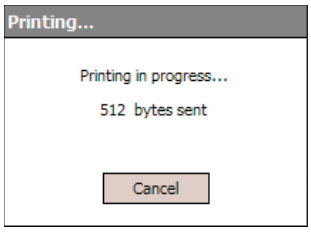


PH02958-3-14-05

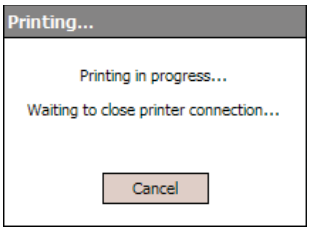
Once selected, a series of message boxes will appear giving the status of the printer, and the printer will start printing:



PH02959-3-14-05



PH02960-3-14-05



PH02961-3-14-05

TX02522-6-20-05

Sample Joint Report Graphs

NOTE: This is only a demonstration. Data used is fictitious and for demonstration purposes only. Do not use this graph as a benchmark for inspecting other fusion joints. There are several factors that determine what a graph should look like and all graphs will not look exactly the same. Training and resources are available to assist in how to interpret a graph.

The appearance of joint reports varies due to several factors, but their basic profile resembles the following samples:

Typical fusion process:

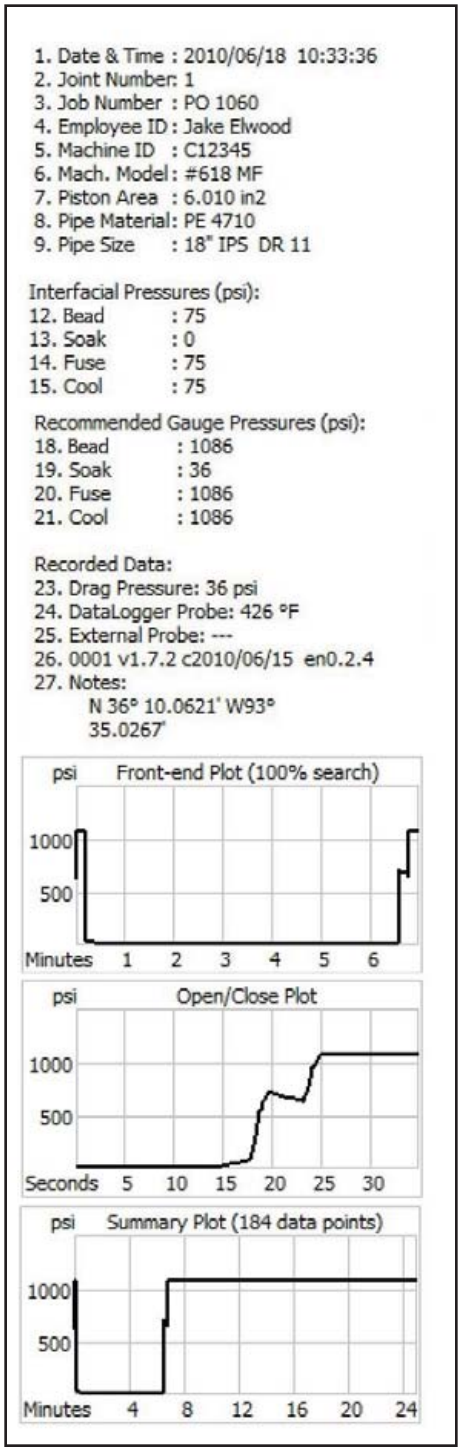
Line 26 - **0001 v1.7.2 c2010/06/15 en0.2.4**

0001 - Serial number of the DataLogger
V1.7.2 - Firmware version of DataLogger
C2010/06/15 - Last calibration date. Must be calibrated Annually.
en0.2.4 - Software version of handheld

The front-end plot highlights the "bead-up", the shift sequence into soak cycle, and the duration of the soak cycle.

The Open/Close plot highlights the time taken to remove the heater and fuse the pipe.

The Summary plot shows the entire fusion process from start to stop. This plot is used to determine cool time.



Sample Joint Report Graphs (cont'd)

Example of a joint made with incorrect fusion procedures.

NOTE: This is only a demonstration. Data used are fictitious and for demonstration purposes only.

Pressure set incorrectly

Possible incorrect temperature

Possible incorrect shift sequence

Possible long Open/Close time

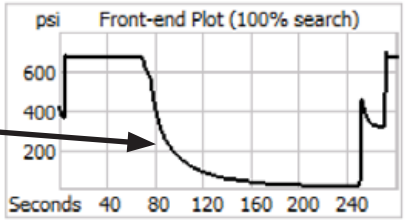
Possible short cool time

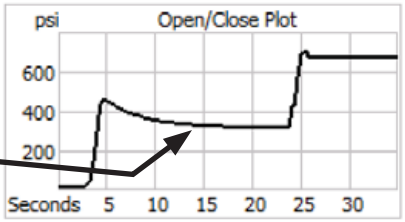
1. Date & Time : 2010/06/18 11:07:57
2. Joint Number: 2
3. Job Number : PO 1060
4. Employee ID : Jake Elwood
5. Machine ID : C12345
6. Mach. Model : #618 MF
7. Piston Area : 6.010 in2
8. Pipe Material: PE 4710
9. Pipe Size : 18" IPS DR 11

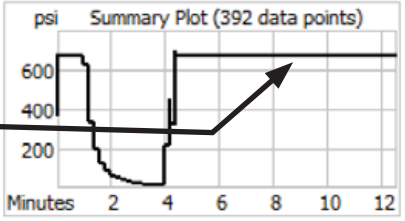
Interfacial Pressures (psi):
12. Bead : 75
13. Soak : 0
14. Fuse : 75
15. Cool : 75

Recommended Gauge Pressures (psi):
18. Bead : 1080
19. Soak : 30
20. Fuse : 1080
21. Cool : 1080

Recorded Data:
23. Drag Pressure: 30 psi
24. DataLogger Probe: 310 °F
25. External Probe: ---
26. 0001 v1.7.2 c2010/06/15 en0.2.4
27. Notes:
N 36° 10.0621' W93° 35.0267'







TX02523-8-23-11

Transferring Joint Reports to PC

Joint Reports stored in the Pocket PC's memory should transferred to a Desktop PC for additional storage. Joint Reports are transferred using Microsoft ActiveSync or Mobile Device Center for Recon (4,5,6).

Transferring with Microsoft ActiveSync or Mobile Device Center for Recon (4,5,6).

1) If not yet installed, please install Microsoft ActiveSync or Mobile Device Center before proceeding. Follow the instructions provided by Microsoft to install the ActiveSync software on your Desktop PC before plugging in the USB Sync Cable.

   NOTE: PCs running Microsoft Windows Vista and Windows 7 use **Mobile Device Center**.
   PCs running Microsoft Windows XP or earlier use **ActiveSync**.
   Latest versions of these programs can be found at:
   http://www.microsoft.com/windowsmobile/activesync/default.mspx

2) With ActiveSync or Mobile Device Center installed, carefully connect the Recon to your Desktop PC using the USB cable.

3) Skip partership between your Desktop PC and the Recon:

   For ActiveSync (Windows XP)

   a) Click **Cancel** in the Synchronization Setup Wizard dialog window.

   b) Click on the Explore button on the ActiveSync window to reveal folders on the Recon.

   c) The Mobile Device window opens and you see a **Joint Reports** folder. You may copy the entire folder over to your PC by drag-and-drop. For convenience, please copy the folder to your **My Documents** folder on your Desktop PC. Once the reports are securely backed up on your Desktop PC, you may delete the files in the **Joint Reports** folder.

   For Mobile Device Center (Windows Vista and Windows 7)

   a) Select **Connect without setting up your device** in the Windows Mobile Device Center dialog window.

   b) Point at **File Management** and select **Browse the contents of your device**.

   c) Double click on the **Tripod Data Systems Recon** icon.

   d) Double click on the **My Documents** folder icon and you will see the **Joint Reports** folder. You may copy the entire folder over to your PC by drag-and-drop. For convenience, please copy the folder to your **My Documents** folder on your Desktop PC. Once the reports are securely backed up on your Desktop PC, you may delete the files in the **Joint Reports** folder.

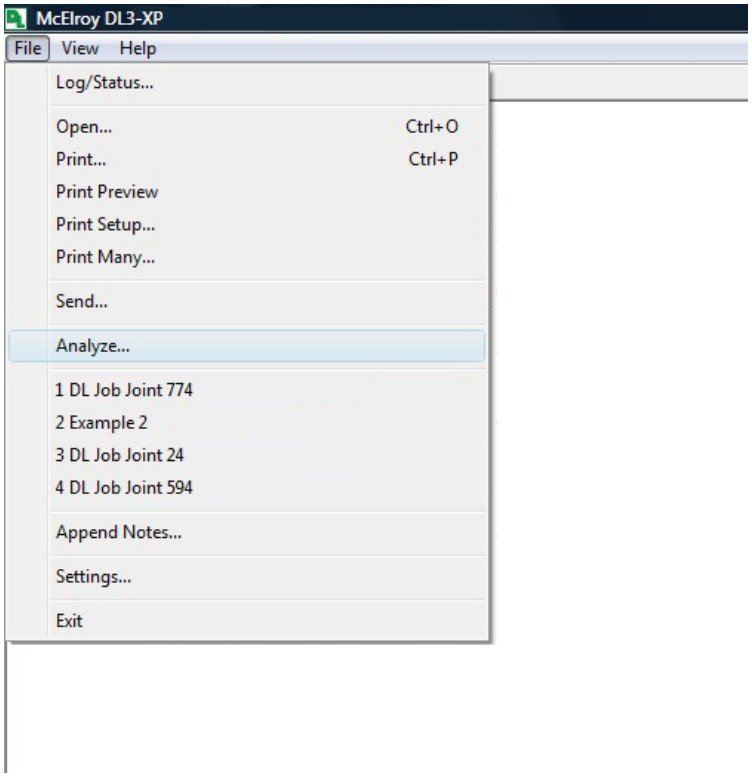
4) In the case of TDS Recon 4, reports are stored in the "Built-in Storage" non-volatile memory area. Only one copy of the report is stored. In the case of TDS Recon 5 and 6, all memory are non-volatile, and joint reports are stored in the **My Documents** folder.

NOTE: The Pocket PC has a large enough capacity to store thousands of joint reports. However, it is advisable to backup your data as frequently as you can to avoid losing data.

TX02812-2-21-11

DL3-XP Menu

File > Log/Status…
Opens the Log/Status dialog box to allow Bluetooth®-equipped Windows XP PC's to monitor the status of the DataLogger® or set it up to log data. Refer to The **Log/Status** Dialog Box section for details on setting up to log the fusion process.



PH04520-2-21-11

File > Open…
Opens a previously downloaded or saved file for viewing and printing.

File > Print…
Prints the joint report in the current view.

File > Print Preview
Preview the print version of the joint report in the current view.

File > Print Setup…
Select a printer and a printer connection. This command presents a Print Setup dialog box, where you specify the printer and its connection.

File > Print Many…
Print one or more joint reports. A file dialog box will open and you may select one, a few or all joint reports within a folder to be printed.

To select a group of joint reports in series, click the first joint reports you want to print, then hold down the **Shift** key and click the last joint report you want to print. When you release the mouse button, the select joint reports will be highlighted.

To select a group of joint reports while skipping others, click on the first joint report you want to print, then hold down the **Ctrl** key and click on the joint reports you want to print one at a time. Release the **Ctrl** key only after the last report is selected. Selected reports are highlighted.

Click **Open** to print the selected reports.

File > Send
Send (email) the joint report in the current view. This command presents a mail window with the displayed joint report attached to it. You may then fill out the **To** field, **Subject** field, etc., and add text to the body of the message if you wish. When you are finished you may click the "**Send**" button to send the message.

File > Analyze...
An analyzer dialog box appears which will allow you to select a range of data points to analyze closer. Information for the selected range will appear in the analyzer graph.

File > Settings…
Change program settings such as COM port, pressure unit, temperature unit, and toggle demo mode.

TX02526-2-21-11

Setup Instructions for DL3 Recon (Factory Default Setting)

IMPORTANT: Applying an image restoration deletes all Joint Reports and returns the Recon to factory settings. For software updates, use the update instructions in section "Software Update".

This setup provides instructions for setting up the Recon:

- Getting the setup image file from the Internet
- Set Recon Date and Time
- Transferring the image file (Rec6) onto the Recon [factory setting]
- Setting up the Bluetooth® Radio (Wireless)
- Setting up Wired Serial Port (Wired)
- Installing Printer Port (optional)
- Software Update

NOTE: The Recon 5 and 6 use Microsoft's Bluetooth Stack, which requires a different communications partnership and COM port for every DataLogger and printer. Deleting an existing partnership is simple; simply hold down on the DataLogger icon in the Bluetooth screen and tap "Delete". Setting up a new partnership is easy too; simply follow the instructions in section "Setting up the Bluetooth® Radio".

TX03049-2-25-11

Getting the Setup Image File from the Internet

This manual can be downloaded from:
http://www.mcelroy.com/fusion/support/dl3-ppc_recon_install.htm

Setup files, software updates, and instruction videos are located at:
http://www.mcelroy.com/fusion/support/

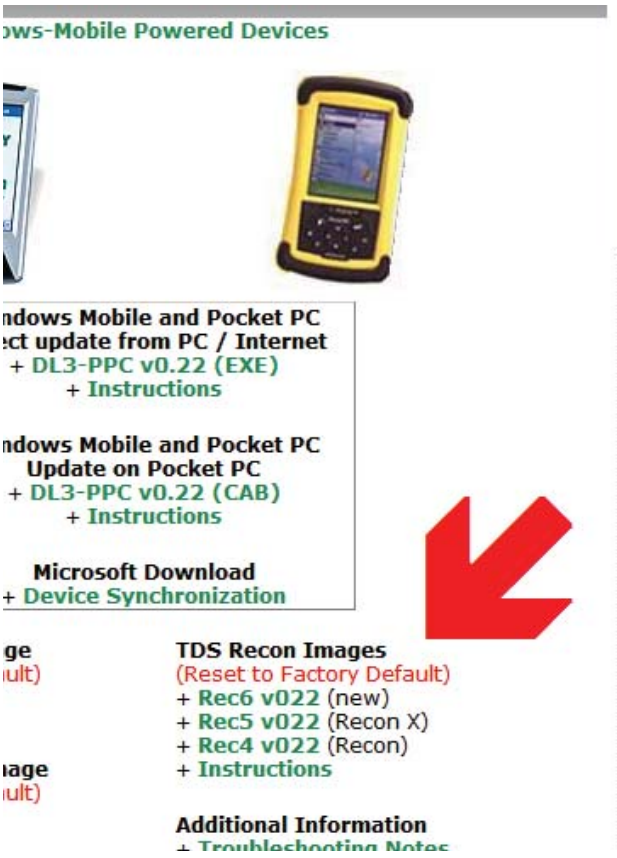
Due to the various releases of Windows Mobile operating systems, McElroy supports different versions of Recons. Follow these steps to identify the correct firmware version of your TDS Recon:

1) Start > Settings > System > System Information
2) Look at the firmware version number (examples: 4.2.5, 5.0.1, 6.0.1)
3) If the firmware version number starts with a 4, use the image file Rec4 vXXX. If it starts with a 5, use Rec5 vXXX. If it starts with a 6, use Rec6 vXXX image file.

NOTE:
A) Recon 6 was released in the second half of 2008
B) Recon 5 was know as the Recon X
C) Recon 4 was the original Recon

Click on the corresponding **Recon factory image file (exe)**

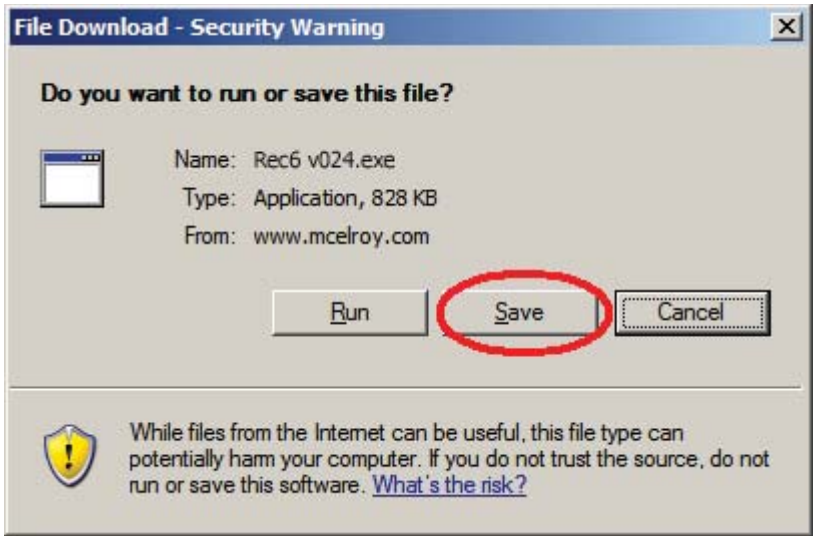
NOTE: There are minor differences between the Recons, and the following screenshots were generated on a Recon 5 model.



PH03633-10-20-08

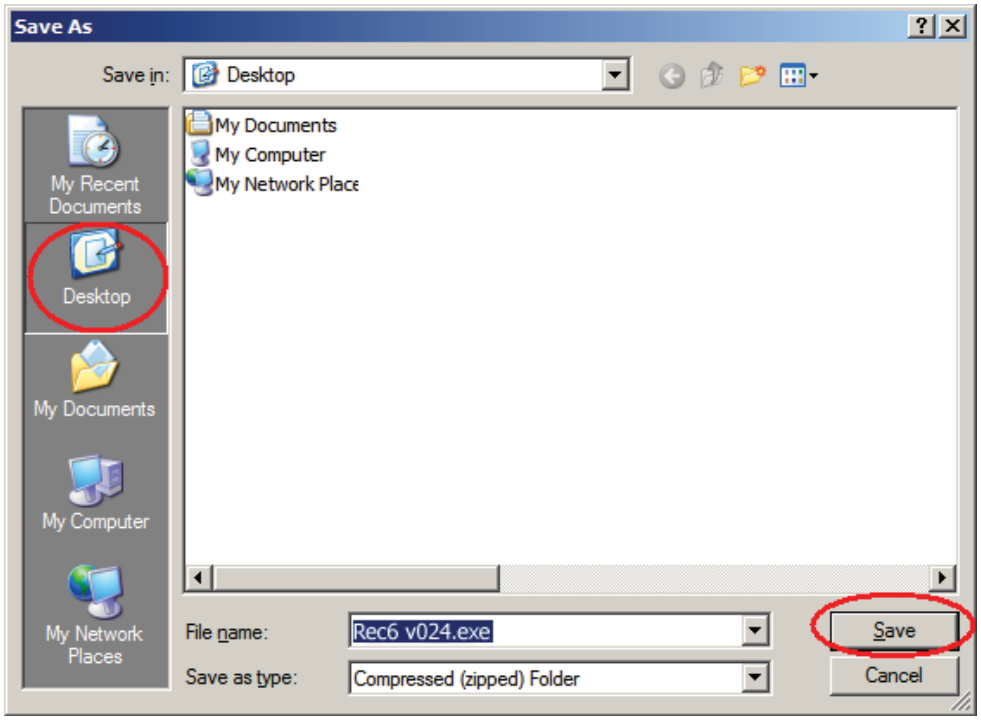
Getting the Setup Image File from the Internet (cont'd)

Click **Save**:



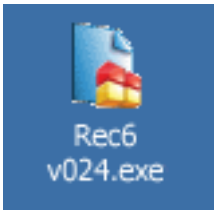
PH03634-10-20-08

Choose to save it on your Desktop and click **Save**:



PH03635-10-20-08

After downloading, you should see an icon on your desktop:



PH03636-10-20-08

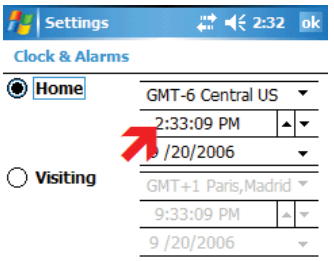
TX02814-10-20-08

Set Recon X Date and Time

NOTE: Tap **Start > Today** to reveal the Today screen.
Tap the **time and date** field.

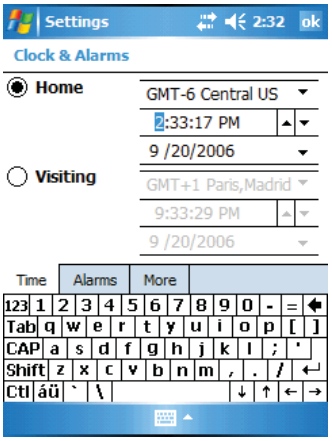
PH03352-10-24-06

Tap on the **keyboard symbol** to bring up the on screen keyboard.



PH03353-10-24-06

Tap the individual time and date fields to change them. Finally, tap **OK** (top right corner of screen) and tap **Yes** to save changes.



PH03354-10-24-06

TX02815-10-20-08

Transferring Image File (Rec6 vXXX.exe) onto the Recon (factory setting)

The Recon is environmentally sealed, therefore, programming and setting up the Recon is through its USB port using Microsoft ActiveSync or Mobile Device Center.

NOTE: Please make sure Microsoft ActiveSync or Mobile Device Center is installed on your Desktop or Notebook PC before proceeding. This is a one-time-only setup on the Desktop PC. ActiveSync can be downloaded from: **http://www.microsoft.com/windowsmobile/en-us/help/synchronize/device-synch.mspx**

With ActiveSync or Mobile Device Center installed, follow these instructions to setup the Recon:

1) Make sure the Recon is fully charged or have the AC adapter plugged in during the setup. Turn on the Recon. For brand new units from the factory, follow the on screen setup instruction. On the Password screen, tap the on screen **Skip** button since password protection is not required.

NOTE: If returning to factory default setting is desired, hold the power button down for 5 seconds, and on hearing the beep, press both the **OK** and Windows (⊞) buttons simultaneously. **NOTICE:** this will erase all programs and data.

2) Connect the USB cable between the PC and the Recon. Wait for the PC to find the Recon hardware and allow time for the ActiveSync program to load.

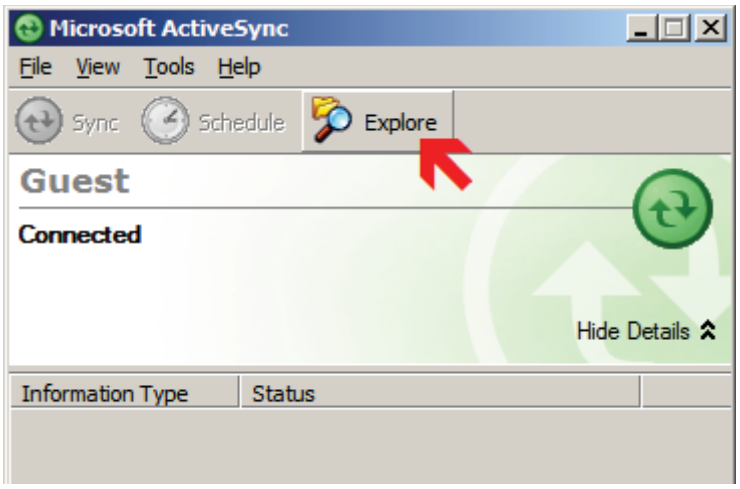
3) **ActiveSync** displays the Synchronization Setup Wizard. Click **Cancel**.

   For **Mobile Device Center** (Windows Vista and Windows 7), select **Connect without setting up your device** in the Windows Mobile Device Center dialog window, point at **File Management** and select **Browse the contents of your device**, double click on the **Tripod Data Systems Recon** icon, the double click on the **My Documents** folder icon.

PH03355-10-24-06

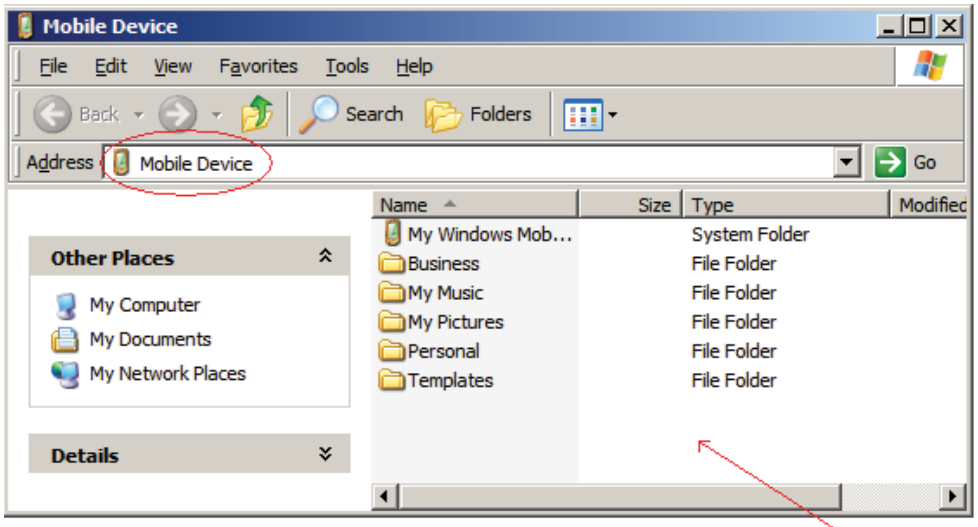
Transferring Image File (Rec6 vXXX.exe) onto the Recon (factory setting) (cont'd)

4) Microsoft ActiveSync activates and is connected to the Recon as below. Click **Explorer.**



PH03356-10-24-06

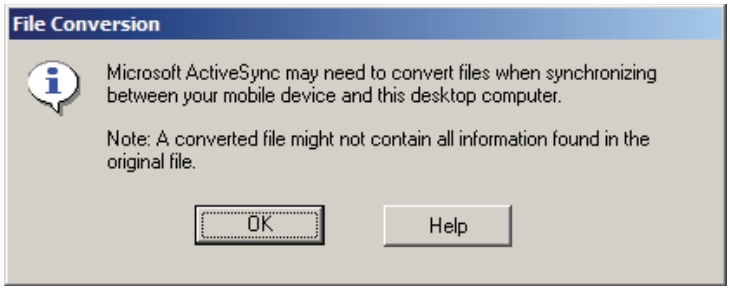
5) An Explorer window appears showing the folder below.
On the Desktop PC, drag the **RecXimg.exe** file icon from the desktop to the Mobile Device folder as shown.



PH03637-10-20-08

PH03636-10-20-08

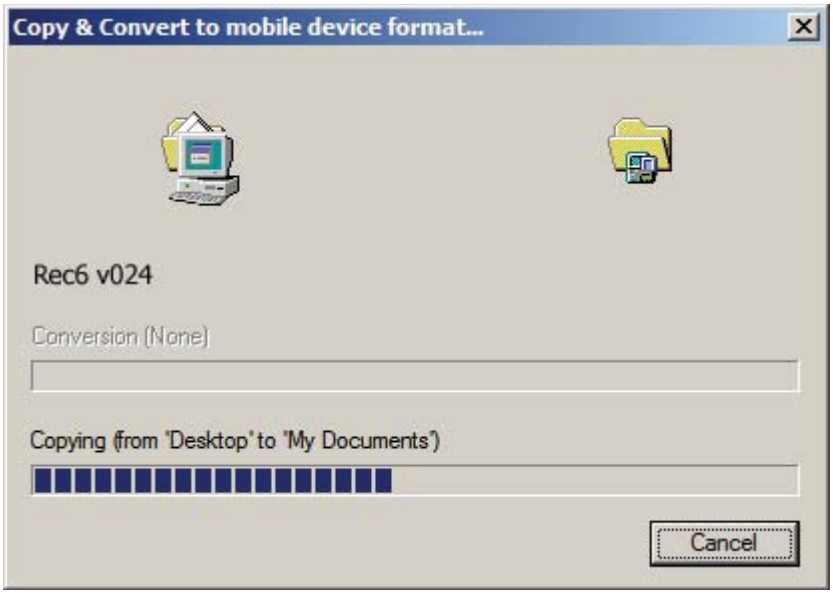
6) Click **OK** on the message below:



PH03358-10-24-06

Transferring Image File (Rec6 vXXX.exe) onto the Recon (factory setting) (cont'd)

Wait for the files to be copied.



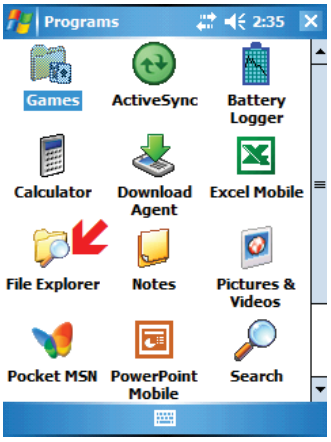
PH03638-10-20-08

7) Bring up File Explorer to locate the installation program:

Tap **Start** then **Programs**.

PH03360-10-24-06

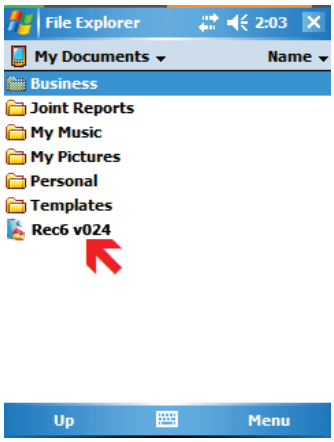
Tap **File Explorer**.



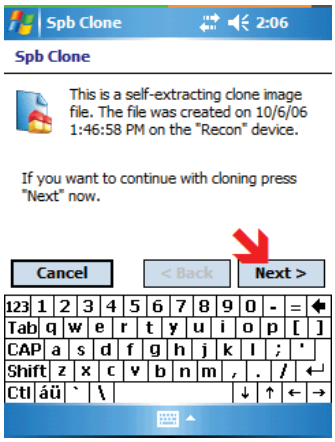
PH03361-10-24-06

Transferring Image File (Rec6 vXXX.exe) onto the Recon (factory setting) (cont'd)

8) In Folder Explorer, navigate to the installation program.
Tap **RecXimg**.
Tap **Next** to Continue.

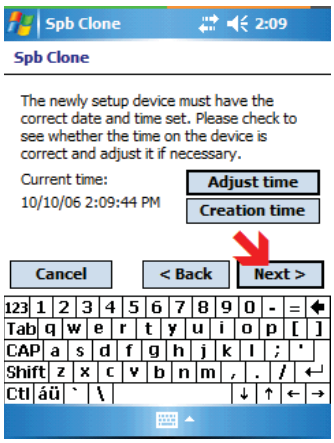


PH03639-10-20-08

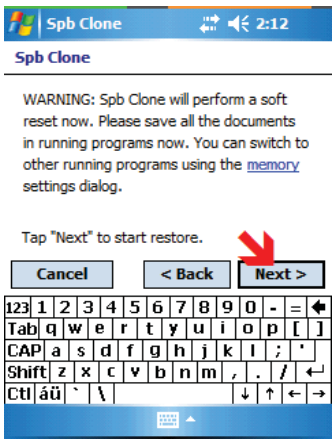


PH03363-10-24-06

9) Follow the on screen instructions to install the image on the Recon:
Check to make sure the date and time are correct. If adjustment is needed, tap **Adjust time**. Otherwise, tap **Next**.
Tap **Next** to start restoring image.



PH03364-10-24-06



PH03365-10-24-06

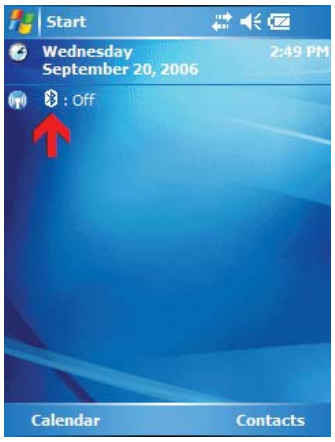
10) The Recon will perform a soft reset and begin the restore process. The screen may turn dark for 15 seconds. Watch the screen for progress. The entire process takes about a few minutes.
At the end of a successful image restore, the McElroy DataLogger® screen is displayed:

PH03366-10-24-06

TX02816-2-25-11

Setting up the Bluetooth® Radio

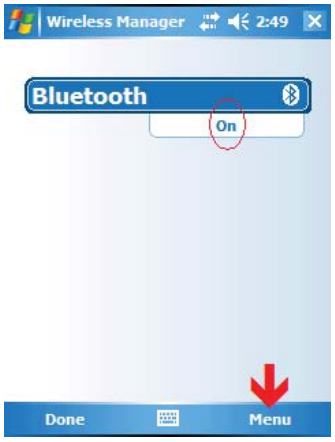
1) Go to the Today screen by tapping **Start > Today**.
At the Today screen tap the **Bluetooth** icon
Tap **Bluetooth** to turn it on



PH03367-10-24-06

PH03368-10-24-06

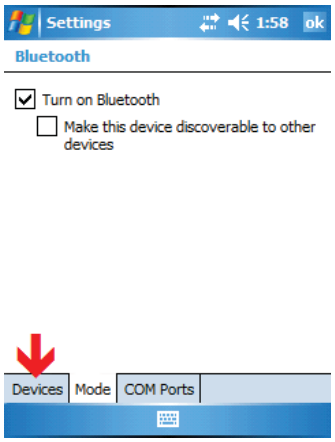
2) Setup Bluetooth
Make sure Bluetooth is **On** then tap **Menu**
Tap **Bluetooth Settings**



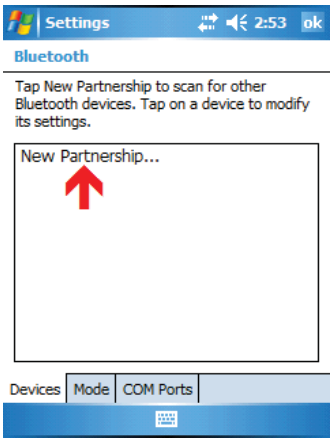
PH03369-10-24-06

PH03370-10-24-06

3) Select Bluetooth device. (DataLogger must be turned on for this step)
Tap **Devices**
Turn on DataLogger and tap **New Partnership**



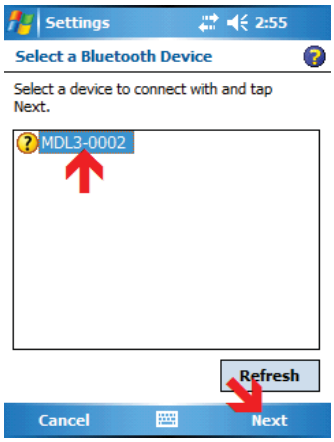
PH03371-10-24-06



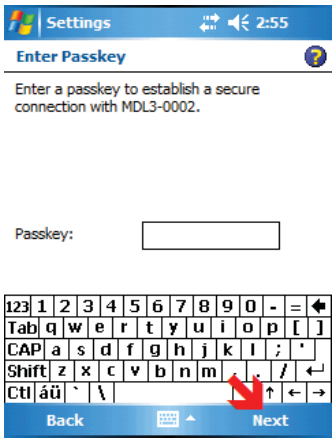
PH03372-10-24-06

Setting up the Bluetooth® Radio (cont'd)

4) Wait for Bluetooth devices to be found, and then select it
Select the corresponding DataLogger MDL3 and then tap **Next**
Tap **Next**

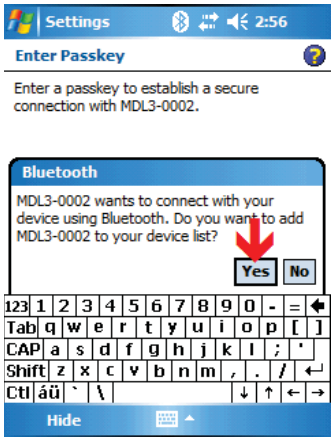


PH03373-10-24-06

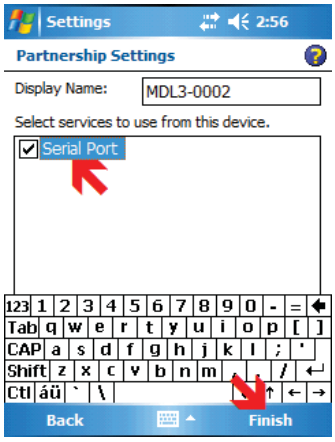


PH03374-10-24-06

5) Accept partnership and service.
Tap **Yes** to accept partnership.

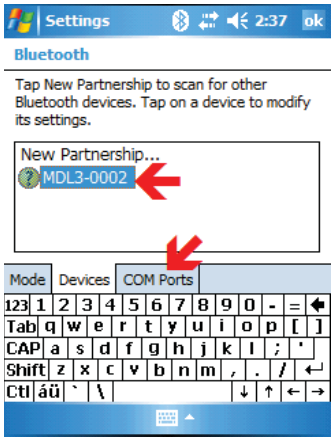


PH03375-10-24-06

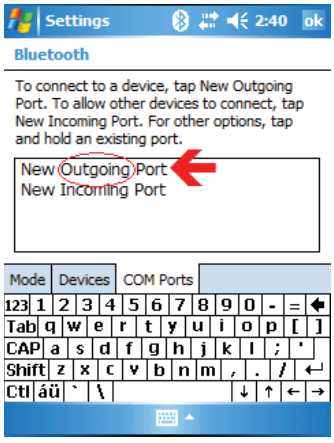


PH03376-10-24-06

6) Setup COM port
Select MDL3 and tap **COM Ports**
Tap on **New Outgoing Port**



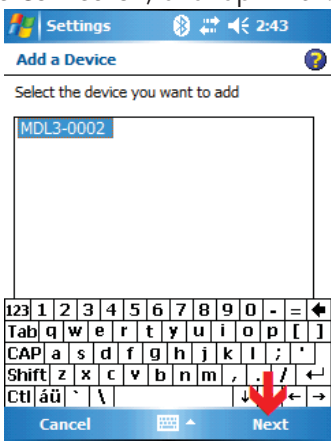
PH03377-10-24-06



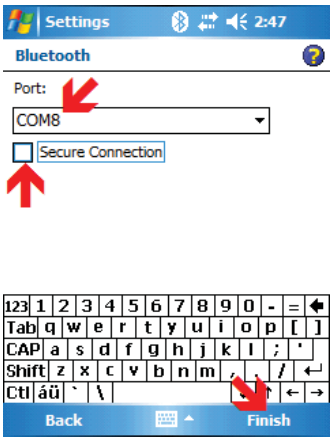
PH03378-10-24-06

Setting up the Bluetooth® Radio (cont'd)

7) Bind device to COM port
Tap **Next**
Select **COM8**, uncheck **Secure Connection**, and tap **Finish**.

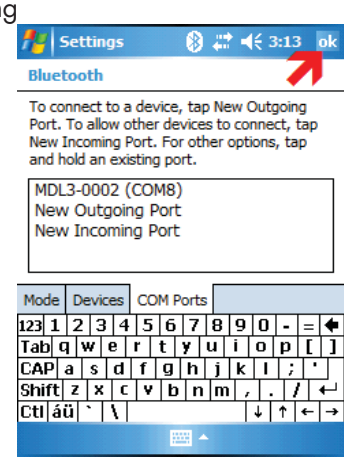


PH03379-10-24-06



PH03380-10-24-06

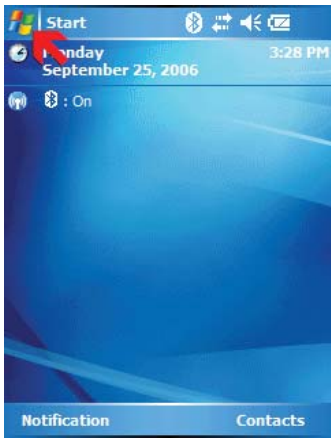
8) Confirm Bluetooth selection
Tap **OK** to complete Bluetooth setup
Tap **X** to exit Bluetooth setting



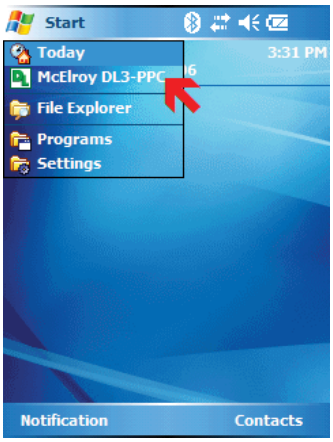
PH03381-10-24-06

PH03382-10-24-06

9) Access McElroy DL3-PPC program
Tap **Start**
Tap **McElroy DL3-PPC**



PH03383-10-24-06

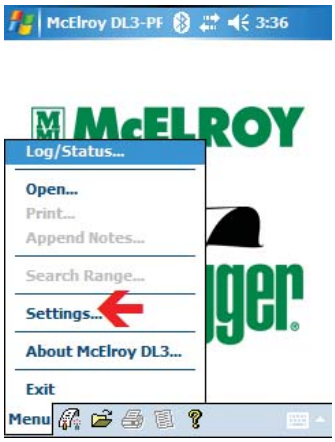


PH03384-10-24-06

Setting up the Bluetooth® Radio (cont'd)

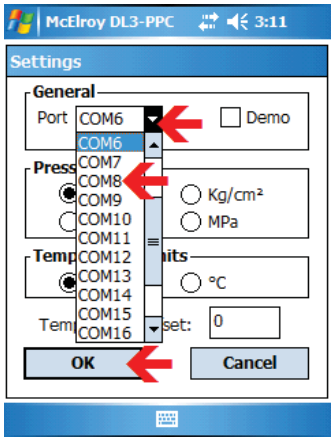
10) Setup McElroy DL3-PPC
Tap **Menu**
Tap **Settings...**

PH03385-10-24-06



PH03386-10-24-06

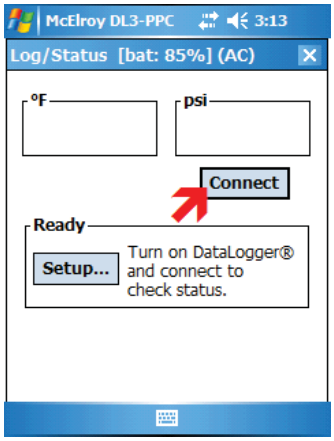
11) Setup program COM port
Select **COM8** and tap **OK**
Tap **Log/Status** icon



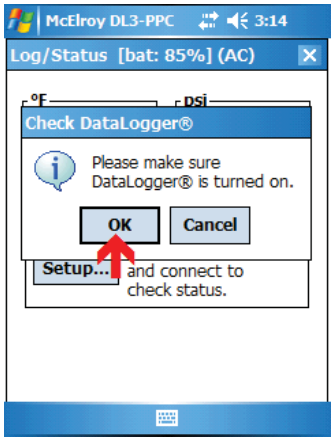
PH03387-10-24-06

PH03388-10-24-06

12) Connect to DataLogger®
Tap **Connect**
Turn on DataLogger and then tap **OK**



PH03389-10-24-06

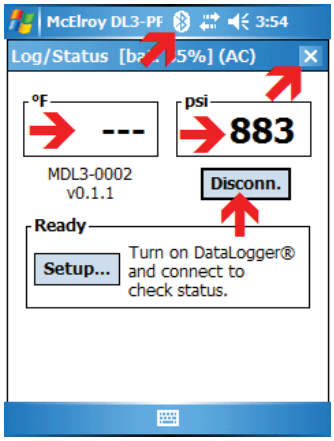


PH03390-10-24-06

Setting up the Bluetooth® Radio (cont'd)

13) Verify connection and exit program

Verify that connection is established by checking pressure and temperature readings. Finally, tap **Disconn** and **X** to exit.



PH03640-10-20-08

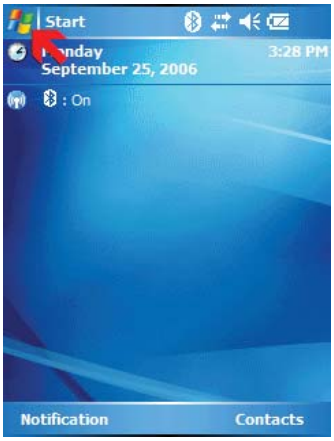
TX02817-10-20-08

Setting up the Wired Serial Port

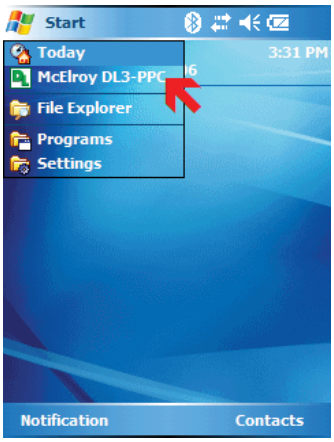
1) Access McElroy DL3-PPC program

Tap **Start**

Tap **McElroy DL3-PPC**



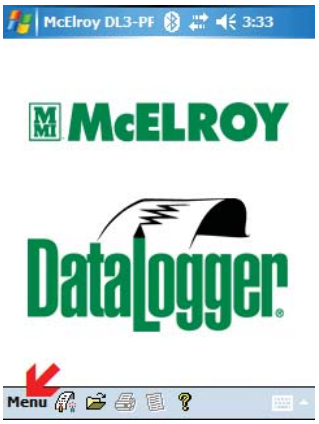
PH03383-10-24-06



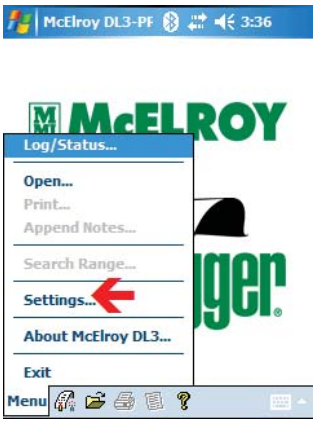
PH03384-10-24-06

Setting up the Wired Serial Port (cont'd)

2) Setup McElroy DL3-PPC
Tap **Menu**
Tap **Setting...**

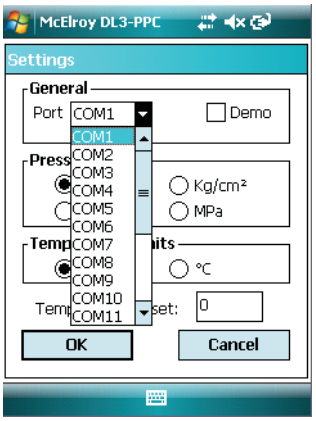


PH03385-10-24-06



PH03386-10-24-06

3) Setup program COM port
Select **COM1** and tap **OK**
Tap **Log/Status** icon



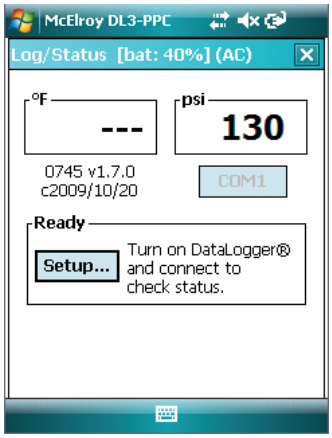
PH04022-1-21-10

PH03388-10-24-06

Setting up the Wired Serial Port (cont'd)

4) Verify connection and exit program.

Verify that a connection is established by checking pressure and temperature readings.



PH04022-1-21-10

TX03050-1-21-10

Installing Printer Port (optional)

An Extech thermal printer model S2500THS can be used with the McElroy DL3 DataLogger® via Bluetooth® interface.

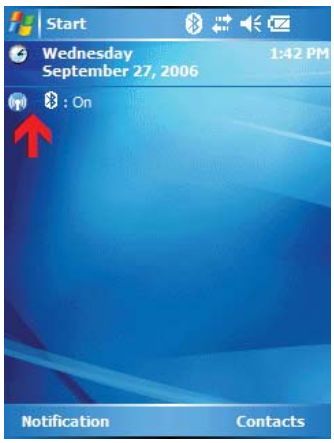
Following the instructions for setting up the Recon for Bluetooth printing.

Get to the Today screen by tapping **Start > Today:**

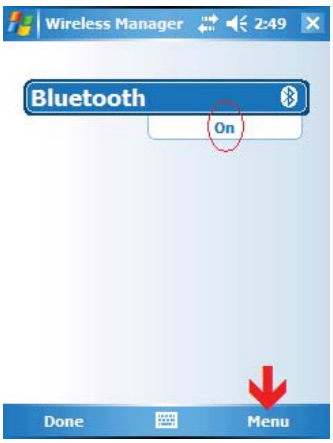
Access Bluetooth Menu

Tap the **Bluetooth** icon

Make sure Bluetooth is **On.** If not, tap on **Bluetooth** and then tap **Menu**



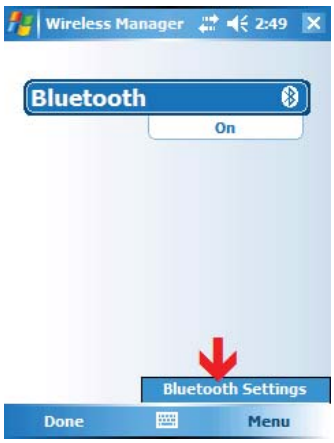
PH03391-10-24-06



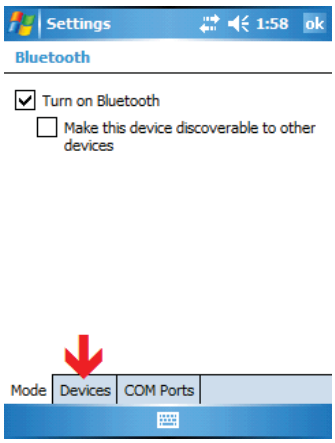
PH03392-10-24-06

Installing Printer Port (optional) (cont'd)

3) Access Bluetooth Settings
Tap **Bluetooth Settings**
Tap **Devices**

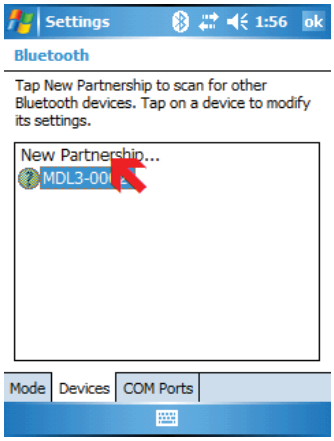


PH03393-10-24-06



PH03394-10-24-06

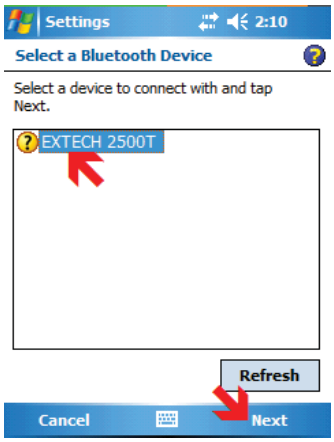
4) Prepare printer for partnership. Plug in printer power supply to make sure printer stays on.
Turn on printer, then tap **New Partnership…**
Wait for scanning of Bluetooth devices…



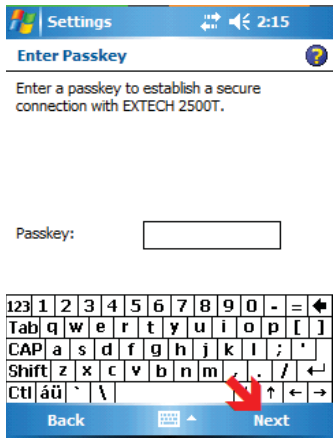
PH03395-10-24-06

PH03396-10-24-06

5) Setup partnership with printer
Tap on the **Extech printer** icon and then tap **Next**
Tap **Next**. You may be prompted several times for passkey, but just tap **Next**.



PH03397-10-24-06

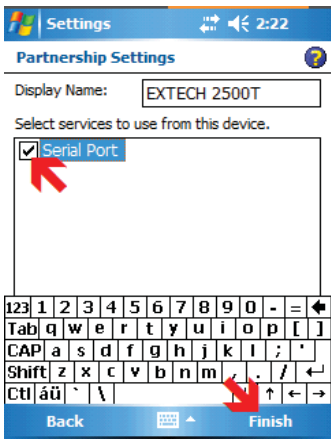


PH03398-10-24-06

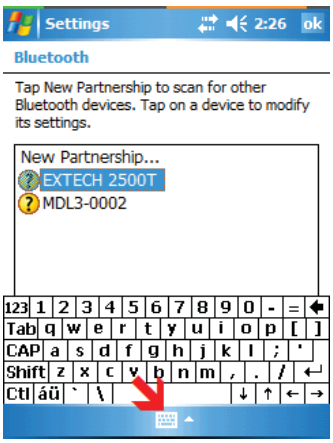
Installing Printer Port (optional) (cont'd)

6) Select serial port service

Tap **Serial Port** to select service and then tap **Finish**.
If keyboard is displayed, tap icon to close it.



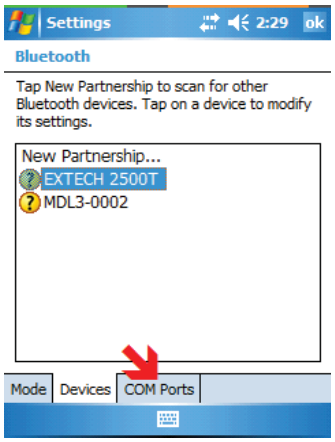
PH03399-10-24-06



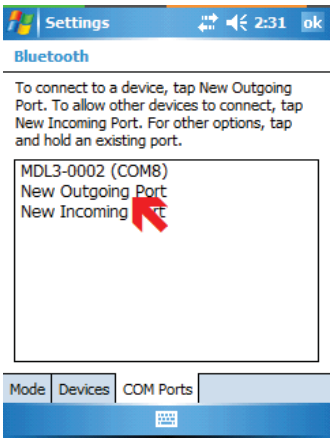
PH03400-10-24-06

7) Prepare to setup COM port

Tap **COM Ports**
Tap **New Outgoing Port...**



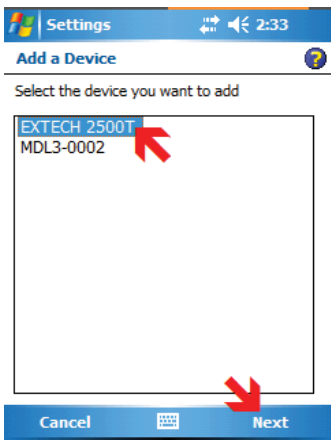
PH03401-10-24-06



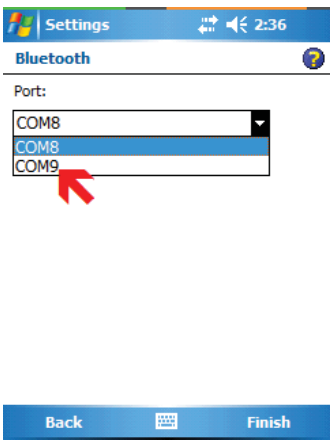
PH03402-10-24-06

8) Setup COM port

Make sure EXTECH 2500T is selected then tap **Next**
Select **COM9**



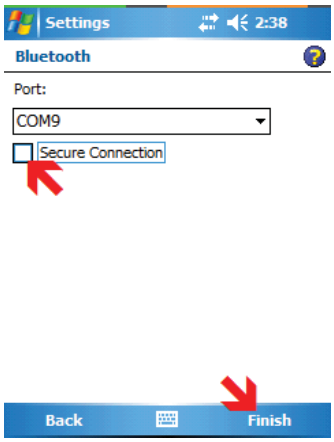
PH03403-10-24-06



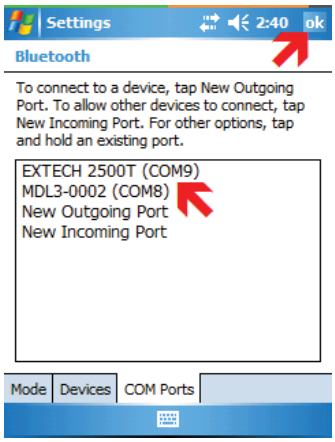
PH03404-10-24-06

Installing Printer Port (optional) (cont'd)

9) Complete printer COM port setup
Uncheck **Secure Connection** then tap **Finish**.
Verify COM assignments then tap **OK**



PH03406-10-24-06



PH03407-10-24-06

10) Exit Bluetooth settings
Tap **X** to exit Bluetooth setting

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TX02818-10-20-08

Software Updates

This section provides instructions for applying software update. This procedure will not cause loss of joint reports, however, it is always advisable to backup joint reports on a regular basis to a desktop PC hard drive and other media.

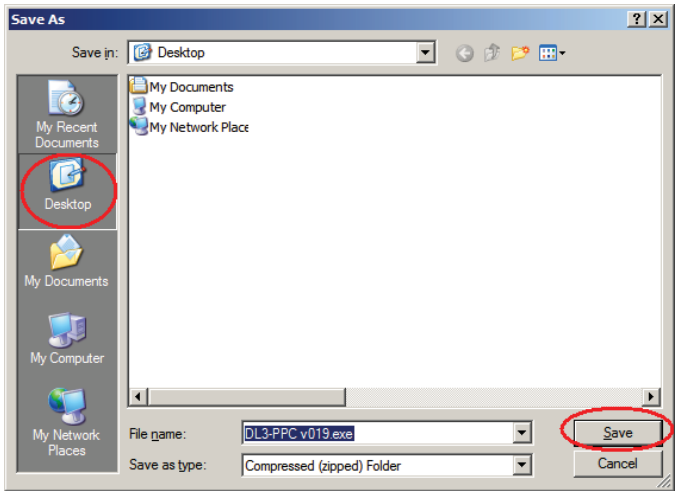
1) On the Recon, make sure the DL3-PPC program is not running, by tapping **Start > McElroy > DL3-PPC**, then **Menu** > **Exit**.

2) Go to **http://www.mcelroy.com/fusion/support/downloads.htm** for the download page:
Click on **DL3-PPC** Direct update from PC.

3) Click **Save**.

Software Updates (cont'd)

Choose to save the file to desktop.



PH03407-10-24-06

4) Make sure that ActiveSync or Mobile Device Center is installed on your desktop computer before proceeding. If ActiveSync is installed, an icon will appear at the bottom of the desktop computer screen in the system tray to the left of the clock:

PH03405-10-24-06

NOTE: If ActiveSync or Mobile Device Center is not installed, please refer to the first part of section (Transferring image file…) for installation instructions.

5) Connect USB cable between Recon and desktop computer

6) **ActiveSync** displays the Synchronization Setup Wizard. Click **Cancel**.

For **Mobile Device Center** (Windows Vista and Windows 7), select **Connect without setting up your device** in the Windows Mobile Device Center dialog window, point at **File Management** and select **Browse the contents of your device.**

PH03355-10-24-06

7) Once ActiveSync is connected, go to the PC desktop and double click on the setup icon:

PH03412-10-24-06

8) Follow the prompts on the PC screen and the Recon screen for further details. Proceed with all default settings when asked, for example the folder in which to install to, and also overwrite existing program on the Recon.

TX02819-2-25-11

Special Instructions for Recon 4

It is recommended that you install Microsoft ActiveSync or Mobile Device Center on your Desktop or Notebook PC to use with your Recon 4 Pocket PC. Microsoft ActiveSync is used to copy joint reports to a PC from the Recon 4 built-in storage.

Please refer to Microsoft Device Synchronization website for the latest software for your Windows Operating System:

http://www.microsoft.com/windowsmobile/en-us/help/synchronize/device-synch.mspx

The Recon 4 runs the same DL3-PPC program with minor differences described below:

1) Reset the Recon via key presses instead of the style. To soft reset (without deleting loaded programs), hold the power button for over 5 seconds. To hard reset (delete all settings and program, hold the power button and start button (the upward pointing arrow) for over 5 seconds.

2) Built-in storage for storing setup files and joint reports. The Compact-Flash Card is called the Storage Card if viewed under File Explorer.

3) The system restoration file is "Recon vXXX" under the "Pocket PC Setup Files" folder in the CompactFlash Storage Card or built-in storage.

Copying Joint Reports

1) Make sure Microsoft ActiveSync or Mobile Device Center is installed on your PC.
2) Make sure the Recon 4 has sufficient battery charge or use the AC adapter.
3) Connect USB cable between Recon 4 and your PC.
4) Your PC will recognize and configure itself to communicate with the Recon 4
5) Once the communication is established, a "New Partnership" dialog box appears on your PC screen. Click "Cancel" to skip the Partnership.
6) A "Partnership Not Set Up" dialog box appears asking for confirmation. Click "OK" to connect as "Guest".
7) The ActiveSync window shows "Guest" on the left-hand side and a green icon with two arrows on the right-hand side indicating communication established.
8) Click on the "Explore" icon on the PC. A Window opens showing files and folders on the Recon 4.
9) Find the Joint Reports folder under the My Documents folder. You may copy the enter folder to your PC's "My Document" folder.
10) Similarly, you may navigate to the Storage Card and find the duplicate joint report folder.
11) Check to make sure all the reports are copied to your PC and you may then delete the reports from the Pocket PC internal storage and Storage Card.

TX02820-10-20-08

Usage and Care

DataLogger®
The Datalogger® serves to record heater temperature and carriage pressure; logging data during the fusion process. It communicates wirelessly with the Pocket PC, uploading the data automatically when the fusion is complete. The unit houses an infrared sensor, two lasers, the **Log** push button, a battery pack and solid-state electronics.

Lasers
Two lasers, mounted in the top of the unit are used to indicate the area being sensed by the temperature sensor. To record the heater temperature, point the top of the unit at the coated butt plate. Pushing the **Log** button will turn on the lasers and the IR sensor will transmit its reading to the Pocket PC. Do not look into the laser beams or point them at anyone. Adjust the distance from the heater butt plate to the sensor until the points merge into one (approximately 4 inches). The sensor has an operating range from 250 to 550 deg. The sensor is not calibrated for uncoated heaters. Readings taken on uncoated heaters will not be correct. Take the heater temperature with a pyrometer and type the reading into the Pocket PC manually.

Batteries
The unit is powered by two D-cell batteries. When the lights dim, or communication becomes erratic replace them. Do not replace them during logging. Changing the batteries will not affect data previously collected.

IR Sensor
The infrared sensor is located in the center hole on top of the unit between the lasers. Dirt or water in this hole will make the sensor read incorrectly. Keep it clean with alcohol on a Q-tip.

Transducer cord
The coiled cord, which connects the pressure transducer to the unit, has screw connectors on both ends. If the cord is damaged it is easily replaced by unscrewing both ends and installing a new cord.

Quick Disconnect
This DataLogger® uses an improved quick disconnect on the pressure transducer. It is designed to seal reliably but not trap pressure in the line. It can be connected under pressure if necessary. To use this unit on older fusion machines you will need Fusion Machine Adapter Kit ADL6001. Remove the QD and fittings on the carriage manifold TX1 port and replace them with the elbow and QD in the kit.

Pressure Transducer
The pressure transducer is calibrated at McElroy Manufacturing, Inc. Its calibration should be checked annually to maintain factory quality.

Storage
Take the batteries out of the DataLogger®, Pocket PC and optional printer if storing for long periods of time. Battery storage temperature is 40°F to 104°F (4°C to 40°C). Do not store a fully charged battery at temperatures greater than 104°F (40°C) for long periods of time – the batteries may permanently lose charge capacity.

Datalogger cord
The coiled cord, which connects the datalogging unit to the junction box, has screw connectors on both ends. If the cord is damaged it is easily replaced by unscrewing both ends and installing a new cord.

Serial cable
The short cable that connects the junction box to the Pocket PC, has screw connectors on both ends. If the cord is damaged it is easily replaced by unscrewing both ends and installing a new cord.

TX03051-1-21-10

No Maintenance Inside Case

NOTICE: There are no parts inside the DataLogger™ that can be repaired by the user. Do not try to open the case. Any attempt to open the case can affect the weatherproofing and can damage the unit.

dataloggerV3

TX02530-6-20-05

Calibration

Unit must be sent to McElroy or Authorized Service Center every year for calibration to ensure accuracy.

TX2531-6-20-05

Specifications

McElroy DataLogger®

Batteries:	2x D-Cell Batteries Alkaline Ni-Cad Ni-mH
Operating Life:	Approx 48hrs
Shelf Life:	The Datalogger batteries will very slowly drain if left inside the Datalogger battery holder, and this may lead to leakage of corrosive battery chemicals after months of storage.
Operating Temp:	-4 to 158 degrees Fahrenheit (-20 to 70 degrees Celsius)
Lasers:	2x Peak Wavelength: 670nm Output Power: <1mW (Class II)
Wired Link:	RS - 232
Wireless Link:	Bluetooth Version 1.1 Level: 4 dBm Range: ~30m (~100ft) Bluetooth Protocols: RFCOMM, L2CAP, SDP Supported Profiles: General Access Profile - Serial Port Profile
Pressure Probe:	Wireless: Range: 0 - 2000PSI Accuracy: Calibrated to +/- 10 PSI across entire range Wired: Range: 0 - 4000PSI Accuracy: Calibrated to +/- 20 PSI across entire range
Temperature Probe:	Calibrated Range: 400 – 550 Degrees Fahrenheit Accuracy: Calibrated to +/- 5°F across calibrated range Probe will attempt to measure temperatures as low as 50°F and as high as 700°F, but no guarantees are made concerning the accuracy outside of the calibrated range.
Data Sampling Rate:	10 samples per second
Pocket PC Specifications:	Refer to manufacturer's manual.
Software Updates:	Available online at http://www.mcelroy.com/fusion/support/downloads.htm

TX03052-2-21-11

About this manual . . .

McElroy Manufacturing continually strives to give customers the best quality products available. This manual is printed with materials made for durable applications and harsh environments.

This manual is waterproof, tear resistant, grease resistant, abrasion resistant and the bonding quality of the printing ensures a readable, durable product.

The material does not contain any cellulose based materials and does not contribute to the harvesting of our forests, or ozone-depleting constituents. This manual can be safely disposed of in a landfill and will not leach into ground water.

TX001660-8-19-99

The leader by design.

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